Mandating Access: Assessing the NIH's Public Access Policy (Online Appendix)*

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August 2019

Keywords: economics of science, open access, nih, nih public access policy, policy evaluation.
JEL Classification Numbers: 031, 034, 038

*I gratefully acknowledge financial support from NIH Grant P01 AG039347. I would also like to thank Bruce Weinberg, David Blau, Daeho Kim, Richard Steckel, Robert Munk, Garrett Senney, Wei Yang Tham, Wei Cheng, Elisabeth Perlman, Martha Stinson, workshop participants at Ohio State University and the U.S. Census Bureau, and participants at the 69th Economic Policy Panel Meeting (in particular, discussants Sebastian Axbard and Dominik Sachs) for many helpful comments and discussions. All remaining mistakes are my own.

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A Data Sources

I begin with seven sources of raw data: 1) MEDLINE, 2) Web of Science, 3) the Directory of Open Access Journals (DOAJ), 4) PubMed Open Access Subset (PMC-OAS), 5) the MeSH vocabulary, 6) MapAffil, and 7) United Nations National Accounts. From MEDLINE, I obtain a list of unique article IDs and information about each article's journal, grant support, publication date, publication type, author count, MeSH terms, title, and abstract. The unique article IDs are called PubMed identifiers (PMIDs), which are assigned to articles by the National Library of Medicine. From Web of Science, I obtain a list of *citing* PMIDs. I also obtain, for each *citing* PMID, a list of *cited* PMIDs (the citing PMID's references). From the Directory of Open Access Journals (DOAJ), I obtain a list of journals identified as being "open access". From the PubMed Open Access Subset (PMC-OAS), I obtain a list of MEDLINE articles in PubMed Central that are open access. From the MeSH vocabulary data set, I obtain the tree structure of MeSH terms that the NLM uses to classify articles in MEDLINE. From MapAffil, I obtain, for each PMID, information on the affiliation of the first author, including country and type of affiliation (e.g., university, hospital, etc.). From the United Nations National Accounts, I obtain data on per capita GDP for a panel of countries. The following subsections will explain each data set in more detail.

A.1 MEDLINE

MEDLINE is a bibliographic database created and maintained by the U.S. National Library of Medicine (NLM). The database can be downloaded by anyone, free of charge.[1] This paper uses the 2016 baseline files.[2] These are distributed by the NLM as 812 compressed Extensible Markup Language (XML) files.

I wrote a series of Perl scripts to extract data from the XML files and place them into tab-delimited text files.[3] The elements that I extract are:[4]

1. "Status" attribute
2. PMID (and the "Version" attribute)
3. NlmUniqueID
4. MeshHeadingList
5. GrantList
6. PublicationTypeList
7. PubDate

[1] http://www.nlm.nih.gov/bsd/licensee/medpmmenu.html

[2] https://www.nlm.nih.gov/bsd/licensee/2016_stats/baseline_med_filecount.html

[3] These scripts (and the rest of the code used to produce the results in this paper) are freely-available in the following GitHub repository: https://github.com/EconJoe/NIHMandate. The parsers rely heavily on the XML::Simple module from the Comprehensive Perl Archive Network (CPAN).

[4] See https://www.nlm.nih.gov/bsd/mms/medlineelements.html for a description of all elements in MEDLINE.

8. MedlineDate
9. ArticleDate
10. ArticleTitle
11. Abstract and AbstractText
12. Language

The top-level element for each record (article) in the MEDLINE XML files is MedlineCitation. This element has four attributes, but I am only interested in the "Status" attribute. This attribute indicates how thoroughly the record's information has been vetted. I only use records with the status "MEDLINE" as these have undergone the most rigorous quality review and are the only true MEDLINE records.

The PMID, or PubMed ID, is a unique identifier for every record in MEDLINE. The PMID element also contains an attribute called "Version". This attribute is included to deal with the "versioning" publishing model, in which multiple versions of the same article are published.[5] The PMID element is crucial for linking the MEDLINE and Web of Science data sets. There are 24,358,442 records in the 2016 baseline files. Because 317 PMIDs have several "versions", there are only 24,358,073 unique PMIDs.

The NLMUniqueID element is a seven, eight, or nine character identifier that uniquely identifies the journal in which a record is published. It is crucial for linking jounal-level information within MEDLINE and other NLM sources. There are 23,395 unique NLMUniqueID in the 2016 baseline files. The mean NLMUniqueID contains 1,041 articles and the median contains 89. 2,579 NLMUniqueID contain only a single article and *The Journal of Biological Chemistry* contains 170,684 articles. In addition to using the NLMUniqueID as a linking variable, I also use it to estimate journal fixed effects and to cluster the standard errors at the journal level in some of the models in the paper.

Unfortunately, other sources of journal-level data, such as DOAJ, do not use the NLMUniqueID. Instead, they use the International Standard Serial Number (ISSN) to identify journals. Thus, to link journal-level information in MEDLINE to these other data sources, I need to use the ISSN. The ISSN is an eight-character value that uniquely identifies periodical publications, including journals. It is assigned by ISSN National Centers, not the NLM. Thus, it is more universal and more useful than the NLMUniqueID for linking to non-NLM sources. If a journal has both a print and electronic format, then each format will receive a separate ISSN. Fortunately, MEDLINE typically include all formats, which allows me to link data at the journal-level regardless of which ISSN format is used in non-NLM sources. The ISSNLinking element is an ISSN that links all formats of the same journal. This element also helps to uniquely identify journals with multiple ISSNs.

The MeshHeadingList element contains a list of all MeSH (Medical Subject Heading) terms assigned to the record. MeSH terms are used to classify the content of each record indexed in MEDLINE. NLM librarians read each article and determine which MeSH terms apply to that article. Thus, they are librarian-supplied, not author-supplied. This eliminates concerns about authors strategically choosing MeSH terms. The MeshHeadingList contains

[5] PLoS Contents is the only journal indexed in MEDLINE that uses the versioning model of publishing.

the following elements: DescriptorName and QualifierName, each of which have the attribute "MajorTopicYN". As suggested by the names, DescriptorName describes the record content, QualifierName qualifies the description, and "MajorTopicYN" indicates whether the MeSH term is a major or minor topic of the article. For instance, "Fetal Growth Retardation" might be a descriptor and "complications" might qualify the descriptor. The MeSH terms are crucial for linking MEDLINE and the MeSH vocabulary. The article-level covariates computed using the MeSH terms are: the 1) total number of descriptor terms and 2) total number of qualifying terms that tag each article.

The GrantList element contains a list of all grants that are acknowledged by a record. It includes the grant number as well as the funding agency. I use the funding agency to identify which are records are NIH-funded. The article-level covariates computed using the grant list are: 1) an indicator for whether an article is NIH funded and 2) the count of non-NIH grants that support an article.

The PublicationTypeList element contains a list of all publication types that characterize an article. Like MeSH terms, these publication types are librarian-supplied. Examples of publication types include "Journal Article", "Review", and "Retracted Publication". There are XX publication types[6], and I combine them into 21 groups to include as article-level covariates in models that I estimate. Two of the publication types are "Research Support, N.I.H., Extramural" and "Research Support, N.I.H., Intramural". I use this as an additional source of information about which records are NIH funded.

MEDLINE has three date elements that I use to determine the publication date of each record: PubDate, MedlineDate, and ArticleDate. PubDate follows a standard dating format, making it very easy to identify the Year element. When dates do not follow this standard format, they are found in the element MedlineDate. For these non-standard dates, I manually code the year. In some cases, there is a year range instead of a single year. For these cases, I take the first year in the range as the publication year. The element ArticleDate contains the date that a publisher first publishes an electronic version of an article. ArticleDate always follows a standard dating format, making it easy to identify the Year element. Often, the date information in the PubDate or MedlineDate elements differs from the date information in the ArticleDate element. This is because the electronic and print versions of articles are often published on different dates. I take the minimum year as the relevant year of publication. Typically, the PubDate and MedlineDate Year elements do not differ by more than a year from ArticleDate Year element. I use the publication year to estimate a set of year fixed effects in all models and also to define the pre and post PAP periods (before and after 2008).

The element ArticleTitle contains the complete English title for each record. If the article is originally published in a different language, it is translated to English. The elements Abstract and AbstractText contain the abstract for each record published in an English language journal. Unlike titles, abstracts are not translated if they are originally published in another language. The titles and the abstracts for each record are used to construct text metrics that are included as article-level covariates in estimated models. See Appendix B for additional information on processing title and abstract text.

The element Language contains information on the language in which an article is pub-

[6]See here for the full list: https://www.nlm.nih.gov/mesh/pubtypes.html

lished. I create 10 indicator variables for 10 languages, which serve as article-level covariates in models that I estimate. These languages are: English, German, French, Russian, Japanese, Spanish, Italian, Chinese, and Other. I also include an additional indicator for articles whose language is undetermined.

A.2 Web of Science

Clarivate Analytics Web of Science is a citation indexing database.[7] It enables the tracking of citation relationships between MEDLINE articles. Unlike the rest of the data used in this paper, the Web of Science data is proprietary. It was extracted from the Web of Science database and transferred for research purposes under NIH Grant P01 AG039347. The data were delivered as 32 XML files and include all articles published between 1950 and 2014 that are indexed in both Web of Science and MEDLINE. There are 13,878,957 citing articles. The mean number of references is 22.76, the median is 17, maximum of 6,310, and the standard deviation is 25.27. There are a total of 14,328,197 cited articles. These receive an average of 22.04 citations, a median of 8, a maximum of 251,686, and a standard deviation of 114.98.

Web of Science provides a wide variety of information about each article. However, for each article, I only extract the PMID along with all of the PMIDs cited by the article (i.e, each PMID and its references). The PMID allows me to link Web of Science records to MEDLINE records.

The references for each PMID allow me to construct various citation measures for each article and author, including those used in the main text. Combined with MapAffil (see below), I can construct citation measures that come from researchers affiliated with a commercial enterprise. Combined with MapAffil and the UN National Accounts data (again, see below), I can construct citatation measures that come from researchers located in a poor/developing country. These data also allow me to construct the following article-level covariates: count of backward citations and count of backward citations to articles published in open access journals.

A.3 Directory of Open Access Journals (DOAJ)

The Directory of Open Access Journals (DOAJ) is an online directory that indexes peer-reviewed open access journals. It began as a project at Lund University in 2002, but is now an independent organization. The database can be downloaded by anyone, free of charge.[8] The database is updated daily, and past versions are not readily available. I downloaded the file on November 11, 2016, and will make it available upon request. The database is distributed as a CSV (comma-separated) file. I use journals' International Standard Serial

[7]The other two main sources of citation data are Scopus (Elsevier) and Google Scholar. Like Web of Science, Scopus is proprietary and identifies citations using lists of journals. In contrast, Google Scholar crawls the web looking for citations. Though Google Scholar tends to be more comprehensive than either Web of Science or Scopus, it does not allow bulk data access. Fortunately, the overlap between the three sources of data is substantial and the correlations between citations from the three sources are close to 1 – especially in Health and Medical Sciences. See Martín-Martín et al. (2018) for an overview of these three sources of citation data and comparisons between them.

[8]Go to http://doaj.org/faq#metadata, and click Download the file to your computer".

Number (ISSN) to match DOAJ data to the MEDLINE data.[9] This data allows me to construct one of the main outcome variables of interest: an indicator variable for whether an article is published in a toll access journal.

A.4 PubMed Central Open Access Subset (PMC-OAS)

The PubMed Central Open Access Subset (PMC-OAS) is the set of open access articles in PubMed Central.[10] These articles are linked MEDLINE using their PMID. The fraction of articles that do not belong to the PMC-OAS (that is, are toll access) is computed for each journal (NLMID). This fraction, is used as a proxy for the journal's open access status.

A.5 MeSH Vocabulary

The MeSH vocabulary is a small set of XML files that contain all MeSH terms and information about each term (e.g., the date it was introduced). These files are freely available from the National Library of Medicine (NLM).[11] I extract the following information for each MeSH term: 1) the term itself, 2) a unique ID assigned to each MeSH term, and 3) the branches of the MeSH tree on which the term is located. The MeSH terms can map to multiple branches on the MeSH tree. I use MeSH branches to characterize the field of articles, which is described in Appendix C.

A.6 MapAffil

MapAffil (Torvik, 2015) is a data set containing information on the affiliation of MEDLINE articles' authors. The 2016 tranche of data consist of 37,412,190 PMID-authors. I extract information on the country and type of institution that characterize each affiliation and use the PMID to link this information to MEDLINE.

There are 929 countries in the MapAffil data. Country information is used to compute author country fixed effects. Each affiliation is categorized into eight institution types: commercial, educational, hospital, educational/hospital, government, military, other organization, or unknown. Institution type information is used to construct a set of indicator variables characterizing the type of author affiliation for each article.

I also use the country and institution type, along with Web of Science data, to construct citation measures that only include citations from authors affiliated with particular countries or institution types. In particular, I am able to identify citations that come from authors in poor/developing countries and who are affiliated with commercial enterprises.

A.7 United Nations National Accounts

The UN National Accounts main aggregates are updated yearly by Economic Statistics Branch of the UN Statistics Division. I use country aggregates on per capita GDP at current

[9] See http://doaj.org/faq#searchresults for the fields contained in the DOAJ data file.
[10] https://www.ncbi.nlm.nih.gov/pmc/tools/openftlist/
[11] http://www.nlm.nih.gov/mesh/filelist.html

prices (U.S. dollars).[12] The data contain yearly GDP information on 220 countries between 1970 and 2015, though I only use data between 2003 and 2013. When data is missing for a particular country-year, I linearly interpolate the value. For 2003-2013, the mean per capita GDP is $14,681 (SD=$23,057) and the median is $4,809.

I use this data to classify each country into per capita GDP quintiles by year. I then link this country-year level data to MapAfill, which enables me to link GDP quintile information to each MEDLINE article. I use this information, along with Web of Science data, to identify citations that come from authors in poor/developing countries. In this case, I define a country as poor/developing for a particular year if it is in one of the bottom two quintiles of the per capita GDP distribution in that year.

B Processing Title and Abstract Text

This section draws heavily on Staudt et al. (2017), which itself draws heavily on Packalen and Bhattacharya (2015). As noted in Appendix A, I use a Perl script to extract the ArticleTitle, Abstract, and AbstractText elements from each record (article) indexed in the 812 MEDLINE 2016 Baseline Files. After extraction, the script indexes all words, word pairs and word triplets (1-, 2-, and 3-grams). It then processes each n-gram by performing the following operations:

1. Convert all text to lower-case.
2. Eliminate 2- and 3-grams with words that cross the following characters: ,.?!;:)(}{][–.
3. Eliminate all remaining characters that are not alphanumeric.
4. Eliminate all n-grams that contain words appearing in the stopword list provided by the NLM at this address: http://mbr.nlm.nih.gov/Download/2009/WordCounts/wrd_stop
5. Eliminate all n-grams that contain the following character sequences: web, www, http, pubmed, medline, clinicaltrialsgov.
6. Eliminate all n-grams that contain more than two adjacent numbers.
7. Eliminate all n-grams that have a length of less than three characters.
8. Keep all 1-grams with character length 3-29, 2-grams with character length 7-59, and 3-grams with character length 11-89.
9. Stem each word from each n-gram using the module Lingua::Stem from the Comprehensive Perl Archive Network (CPAN).
10. Index all the processed n-grams from each title and abstract into 812 tab-delimited text files corresponding to the 812 MEDLINE XML files.

[12] See: http://data.un.org/Data.aspx?q=GDP+per+capita&d=SNAAMA&f=grID%3a101%3bcurrID%3aUSD%3bpcFlag%3a1

Once they are processed, I identify each n-gram's "vintage" ("birth") year – that is, the year the n-gram first appears in the MEDLINE corpus. After an n-gram appears in the MEDLINE corpus, I am able to identify all articles that use the n-gram in a title or abstract. I use this information to identify, for every vintage, a set of "top" n-grams. An n-gram is a top n-gram if it is in the top 0.01 percent of all n-grams in its vintage, in terms of the total number articles that mention it after birth. Top n-grams are identified *within vintage* because n-grams from earlier vintages will have more time to accumulate article mentions than n-grams from later vintages. Thus, it does not make sense to compare n-grams that have different vintages.

I use this information to construct three article-level covariates. First, I compute the count of top n-grams that an article originates. An article originates a top n-gram if it uses the top concept in its vintage year. If multiple articles use a top n-gram in its vintage year, then that particular n-gram has multiple originators. Second, I compute the count of top n-grams that an article adopts early – i.e. within 5 years of the n-gram's vintage. Finally, I compute the total number of n-grams, regardless of vintage or "top" status, that an article uses in its title or abstract.

C Aggregating MeSH Terms to Construct Fields

This section draws heavily on the Appendix of Staudt et al. (2017). They devise an algorithm which uses the Medical Subject Headings (MeSH) that tag most articles in MEDLINE to characterize the fields to which each article belongs. Note that Staudt et al. (2017) use the 2014 MEDLINE baseline files, but the current paper uses the 2016 MEDLINE baseline files.

There are 27,883 raw terms in the 2016 MeSH vocabulary and they vary widely in their descriptive detail. For instance, some articles are tagged with general terms such as *Body Regions* and some are tagged with more detailed terms such as *Peritoneal Stomata*. Thus, in order to construct comparable fields, I aggregate all MeSH terms to a similar level of descriptive detail.

To understand the aggregation method, it is important to first understand how MeSH terms are organized. MeSH terms have a hierarchical structure. At the top of the hierarchy (first-level terms) are 16 very general terms such as *Anatomy*, *Organisms*, and *Diseases*. Each of these 16 first-level terms are identified by a unique capital letter. For instance, *Anatomy* is identified by the letter A, *Organisms* is identified by B, and so on. Beneath each of these first-level MeSH terms is a group of second-level MeSH terms. For instance, *Body Regions* is a second-level MeSH term beneath the top-level term *Anatomy*. Each second-level MeSH term is identified by the capital letter of the first-level MeSH term it is beneath and by two numbers. For instance, *Body Regions* is identified by A01. Beneath each second-level MeSH term is a group of third-level MeSH terms identified by the capital letter of the first-level term it is beneath, the two numbers of the second-level term it is beneath, and three subsequent numbers. For instance, *Anatomic Landmarks* is a third-level MeSH term under *Body Regions* and is identified as A01.111. This structure continues to depths of up to 12 levels. Aggregating MeSH terms (that is, classifying lower level MeSH terms as a part of higher level MeSH terms) is complicated by the fact that most MeSH terms fall beneath multiple higher level MeSH terms. Consider the MeSH term *Asthma*. This term has four

separate identifiers: C08.127.108, C08.381.495.108, C08.674.095, and C20.543.480.680.095. Thus, *Asthma* falls under the first level MeSH term *Diseases* (identified by C). It also falls under the second-level terms *Respiratory Tract Diseases* (C08) and *Immune System Diseases* (C20). The problem arises because MEDLINE records only contain the MeSH terms themselves, not their identifiers. For instance, if a MEDLINE record is tagged with the MeSH term *Asthma*, it is not clear whether this is the *Asthma* that is beneath *Respiratory Tract Diseases* (C08) or *Immune System Diseases* (C20). Consider aggregating the raw MeSH term *Asthma* to the second-level – i.e., splitting it between the second-level terms *Respiratory Tract Diseases* and *Immune System Diseases*. I opt to simply assign half to each higher level term. Thus, an article originally tagged with the raw term *Asthma* is now tagged with two second-level terms, each weighted by 1/2.

Now consider aggregating the raw MeSH term *Asthma* to the fourth-level. In this case, *Asthma* must be split between the following fourth-level terms:

- *Lung Diseases, Obstructive* [C08.381.495] from C08.381.495.108
- *Hypersensitivity, Immediate* [C20.543.480] from C20.543.480.680.095
- *Asthma* [C08.127.108] from C08.127.108
- *Asthma* [C08.674.095] from C08.381.495.108

In this case, a quarter of the raw term *Asthma* is assigned to each of these four fourth-level terms. Thus, overall, 1/4 will be assigned to *Lung Diseases, Obstructive*, 1/4 to *Hypersensitivity, Immediate*, and 1/4+1/4=1/2 to *Asthma* itself. Thus, an article originally tagged with the raw term *Asthma* is now tagged with three fourth-level terms, two weighted by 1/4 and one weighted by 1/2.

A last complication is that most article are tagged by multiple raw MeSH terms. As an example, suppose that, in addition to being tagged with *Asthma*, an article is also tagged with the raw terms *Neck* (identified by A01.598) and *Health Information Exchange* (identified by L01.700.253, L01.399.500.500, L01.313.500.500, and E05.318.308.940.968.625.500.500). By the process discussed above, 1/4 of *Health Information Exchange* will be assigned to each of the four fourth-level MeSH terms: *Health Information Exchange* itself (L01.700.253), *Health Information Management* (L01.399.500), *Medical Informatics* (L01.313.500), and *Data Collection* (E05.318.308). Since the lowest level of aggregation for *Neck* is the third-level, it cannot be assigned to a fourth-level term. In this *Neck* is simply eliminated – it is too highly aggregated.

Each of the original remaining MeSH terms, *Asthma* and *Health Information Exchange*, are assumed to receive equal weight in characterizing the article. Under this assumption, the article will be apportioned to each fourth level MeSH term as follows:

- 1/2*1/4=1/8 to *Lung Diseases, Obstructive*
- 1/2*1/4=1/8 to *Hypersensitivity, Immediate*
- 1/2*1/4=1/8 to *Asthma*
- 1/2*1/4=1/8 to *Asthma*

- 1/2*1/4=1/8 to *Health Information Exchange*
- 1/2*1/4=1/8 to *Health Information Management*
- 1/2*1/4=1/8 to *Medical Informatics*
- 1/2*1/4=1/8 to *Data Collection*

Obviously 1/8+1/8+1/8+1/8+1/8+1/8+1/8+1/8=1. Thus, an article that was originally tagged by the three raw MeSH terms *Asthma*, *Neck* and *Health Information Exchange* is now apportioned between seven different fourth-level MeSH terms – *Asthma* receiving a weight of 1/8+1/8 = 1/4 and the other six receiving a weight of 1/8 each.

In general, each MEDLINE article is apportioned across aggregated MeSH terms in two stages. First, the original MeSH terms are equally apportioned across the higher-level MeSH terms of which they are a part (e.g. apportion *Asthma* equally across *Lung Diseases, Obstructive*, *Hypersensitivity, Immediate*, *Asthma*, and *Asthma*. Second, the higher-level MeSH terms are weighted by the inverse of the number of original MeSH terms of the proper level that tag the article (e.g. the hypothetical article was tagged by three original MeSH terms, but only two at the proper level of aggregation, and so each is weighted by 1/2).

Each article is assigned to the most highly weighted fourth-level MeSH term. In the example above, the article would be assigned to *Asthma*, which received a weight of 1/4. Ties are broken randomly. Thus, each article is assigned to a single aggregated "field". These fields are used to cluster standard errors.

I also use raw MeSH terms to develop and alternative characterization of an article's field. In particular, I first identify the major Descriptor MeSH terms for each article. If there are multiple major MeSH terms, I choose the first listed as the raw term to characterize the field.

D NIH Articles and Comparison Articles

There are 2,050,044 articles in MEDLINE tagged as being funded by the National Institutes of Health (NIH). 745,076 of these are published between 2003 and 2011.

To pin down counterfactual outcomes, I construct several sets of comparison articles using non-NIH articles. The first comparison sample is the set of all non-NIH articles in MEDLINE published between 2003 and 2011. There are 5,809,078 such articles. I refer to this set of comparison articles as the "MEDLINE" comparison sample. The second set of comparison articles is the set of all non-NIH articles published in the same journal and year as at least one NIH article.[13] There are 4,455,039 such articles. I refer to this set of comparison articles as the "Journal" sample.

The third set of comparison articles is constructed using the PubMed Related Citations Algorithm (PRCA), which uses key words (MeSH terms) and text from titles and abstracts,

[13]Ideally, I would use journals published in the same journal issue. However, the journal issue element in the MEDLINE data is often missing, making this strategy infeasible.

to identify, for any given article, a set of "similar" articles.[14] First, I use the PRCA to harvest similar articles for each NIH article. After restricting the set of harvested articles to those that are published in the 2003-2013 (2011) period and are not themselves NIH articles, there are a total of 2,542,714 unique comparison articles. I refer to this set of comparison articles as the "Full PRCA" sample.

The final set of comparison articles is a subset of the Full PRCA sample. Taking advantage of a similarity score that the PRCA delivers for each harvested article, I am able to identify, conditional on having the same publication year, the particular comparison article that most closely matches each NIH article and implement a 1-to-1 matching (without replacement) algorithm. I refer to this set of comparison articles as the "1-to-1 PRCA" sample. This final set of comparison articles is used to construct the main results in the paper.

In sum, I construct four comparison samples: the "MEDLINE", "Journal", "Full PRCA", and "1-to-1 PRCA" samples. I use four alternative comparison samples because, a priori, it is not obvious which non-NIH articles should serve as comparisons. As shown below, the 1-to-1 PRCA sample contains the set of non-NIH articles that are most similar to the set of NIH articles, making it an intuitively attractive comparison sample. Indeed, this similarity is why I opt to use this comparison sample to produce the main results in the paper. However, caution is warranted. This similarity is driven by the PRCA algorithm, which, as mentioned, identifies comparison articles using key words and text that are similar to a corresponding NIH article. This could be problematic if, for example, the PAP caused "high-quality" *non*-NIH funded researchers to enter fields similar to those of NIH-funded researchers. Such a migration would make NIH articles more likely to match to high-quality articles after the mandate, effectively conditioning away part of the PAP's effect on citations. Conversely, if the PAP caused "high-quality" *non*-NIH funded researchers to move away from fields dominated by NIH-funded researchers, then NIH articles will be less likely to match to high-quality articles after the mandate, which would misleadingly inflate the PAP's effect on citations. Though it seems unlikely that the PAP caused non-NIH funded researchers to migrate into or out of fields previously dominated by NIH funded researchers, concerns about implicitly conditioning on variables affected by the PAP lead me to take a conservative approach and report results from multiple comparison samples. More generally, it is important not to control for any variable affected by the PAP (Stuart et al., 2014), which, as discussed below, also leads me to always report estimates with and without conditioning on article-level covariates.

E Econometric Strategy – Details

E.1 Difference-in-Differences (DiD)

The treatment of interest is the requirement to submit an article to PubMed Central immediately upon acceptance for publication. My core estimates this treatment's effect come

[14] The key words are called Medical Subject Heading (MeSH) terms, and they are used to classify the content of each record indexed in MEDLINE. Librarians at the National Library of Medicine (NLM) read each article and determine which MeSH terms apply to that article. The harvested articles are obtained from PubMed, a superset of the MEDLINE database.

from difference-in-differences (DiD) models. Each article is either an NIH article ($N_i = 1$) or a comparison article ($N_i = 0$) and is either published before ($P_i = 0$) or after ($P_i = 1$) the PAP. In the DiD framework, the impact of the PAP can be identified by estimating the following regression equation:

$$E[Y_i|\beta_{m_i}^{did}, X_i, N_i, P_i] = G^{did}[\beta_{m_i}^{did} + \gamma^{did} N_i + \delta^{did}(P_i \times N_i) + \rho^{did} X_i]. \quad (1)$$

Y_i is an outcome variable, $\beta_{m_i}^{did}$ is a full set of publication month fixed effects, P_i is an indicator that turns on in April 2008, N_i indicates whether an article is NIH-supported, and X_i is a vector of article-level covariates (see Section 2.3). δ^{did} is the parameter of interest, measuring the impact of the PAP.

I estimate equation (1) using articles published in two time periods – January 2007 through December 2009 (the calendar years right before and after the PAP) and January 2003 through December 2011 (the entire sample period). The main reason for using a shorter time period is to guard against the possibly changing composition of NIH and comparison articles over time – it seems plausible that articles published closer in time are more similar than those published further from each other. In addition, visual evidence presented in the next section suggests that NIH and comparison articles may not have been on parallel paths prior to 2006. Using articles published closer to the implementation date eliminates this period of non-parallel trends.

E.2 Triple Differences (DDD)

For identification using the DiD framework, no other variable, unrelated to the PAP, can differentially affect the outcomes for NIH and comparison articles around April 2008. In the case of citation outcomes, we can examine this possibility by implementing a triple differences (DDD) design, with a journal's open access status as the third layer of difference. The idea is that, citations to articles published in open access journals should not be affected by the PAP because researchers have access to these articles both before and after April 2008. In the DDD framework, an article is either published in a toll access ("subscription") ($S_i = 1$) or open access ($S_i = 0$) journal, and the impact of the mandate can be identified by estimating the following regression equation:

$$\begin{aligned} E[Y_i|\beta_{m_i}^{ddd}, X_i, N_i, P_i, S_i] =& G^{ddd}[\beta_{m_i}^{ddd} + \gamma_1 N_i + \gamma_2 P_i + \gamma_3 S_i + \gamma_4(N_i \times P_i) + \gamma_5(N_i \times S_i) + \gamma_6(P_i \times S_i) \\ &+ \delta^{ddd}(P_i \times N_i \times S_i) + \rho^{ddd} X_i]. \end{aligned} \quad (2)$$

In this equation, S_i indicates whether article i is published in a toll access journal, and the other variables are defined as in equation (1). δ^{ddd} is the parameter of interest, measuring the impact of the PAP under the DDD model.

As with equation (1), I estimate equation (2) using articles published in two time periods – January 2007 through December 2009 and January 2003 through December 2011. As discussed in the main text, and shown in Tables H.3.1 through H.3.4, some estimates of δ^{ddd} turn out to be quite large. Figure F7 shows that the ratio of NIH citation means to comparison citation means was declining prior ot the PAP and then continued to decline

after the PAP. That is, the citation gap between NIH and comparison articles published in open access journals is closing between 2003 and 2011. In contrast, the citation gap between NIH and comparison articles published in toll access journals is fairly stable over this period. These twin dynamics lead to large and positive estimates of δ^{ddd} in some specifications. However, these dynamics also suggest that the citation ratios for NIH/comparison articles published in open access journals are not an appropriate counterfactual for citation ratios for NIH/comparison articles published in toll access journals.

All estimates using the short time period around the PAP – January 2007 through December 2009 – yield point estimates that are fairly small in magnitude.

E.3 Regression Discontinuity (RD)

I also dispense with comparison articles and obtain estimates using a regression discontinuity design (RD), where time (measured at a monthly frequency) is the running variable and April 2008 is the cutoff after which NIH articles must be submitted to PubMed Central. In the RD framework, the impact of the PAP can be identified by using NIH articles to estimate the following regression equation:

$$E[Y_i|\alpha^{rd}, m_i, P_i] = G^{rd}[\alpha^{rd} + \beta^{rd} f(m_i) + \gamma^{rd}(f(m_i) \times P_i) + \delta^{rd} P_i]. \tag{3}$$

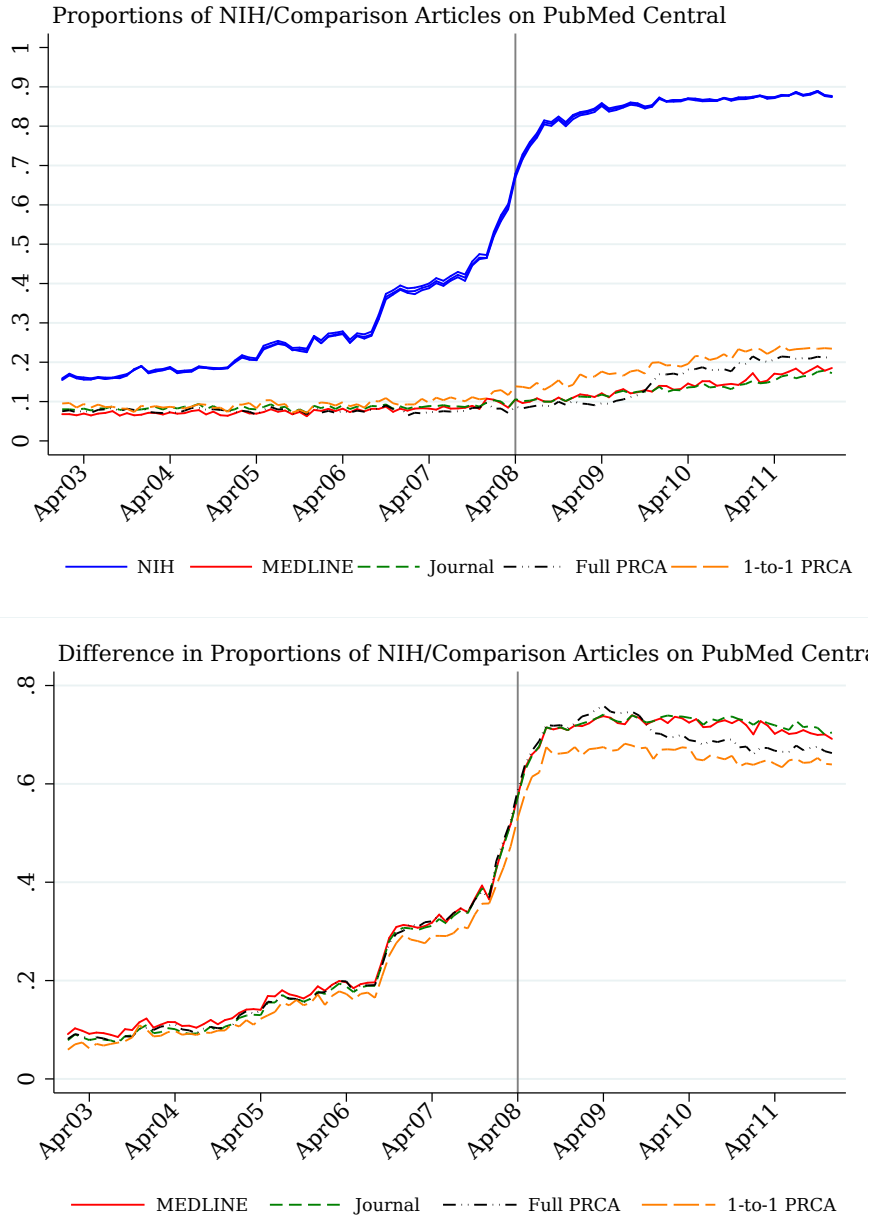
Y_i again denotes the outcome of interest for article i and P_i is an indicator that turns on in April 2008. f is a polynomial of the publication month, m_i, for article i. In practice, I use linear and quadratic polynomials. The term $f(m_i) \times P_i$ generally allows for different polynomials before and after the PAP. Hoewver, in some specifications, I set $\gamma^{rd} = 0$, forcing the polynomial to be the same on both sides of the threshold. The parameter of interest is δ^{rd}, which measures the local average treatment effect (LATE) of the PAP on articles published on and immediately after April of 2008. I produce estimates using three different bandwidths – 6, 12, and 24 months before and after the PAP. The results are estimated using a triangular kernel, which puts more weight on articles published closer to the implementation of the PAP.

E.4 Estimation

The main set of estimates are obtained by modeling the conditional mean functions, G^{did}, G^{ddd}, and G^{rd}, as exponential (which gives rise to the Poisson regression model) and using pseudo maximum likelihood (PPML) to estimate equations (1), (2), and (3). This gives δ^{did}, δ^{ddd}, and δ^{rd} a semi-elasticity interpretation – the percent change in the outcome for NIH articles after the PAP. In the online appendix, I present results obtained using several alternative models. Specifically, I use OLS to estimate equations (1), (2), and (3) when outcomes are modelled as linear in levels or linear in the inverse hyperbolic sine (IHS) transformation.

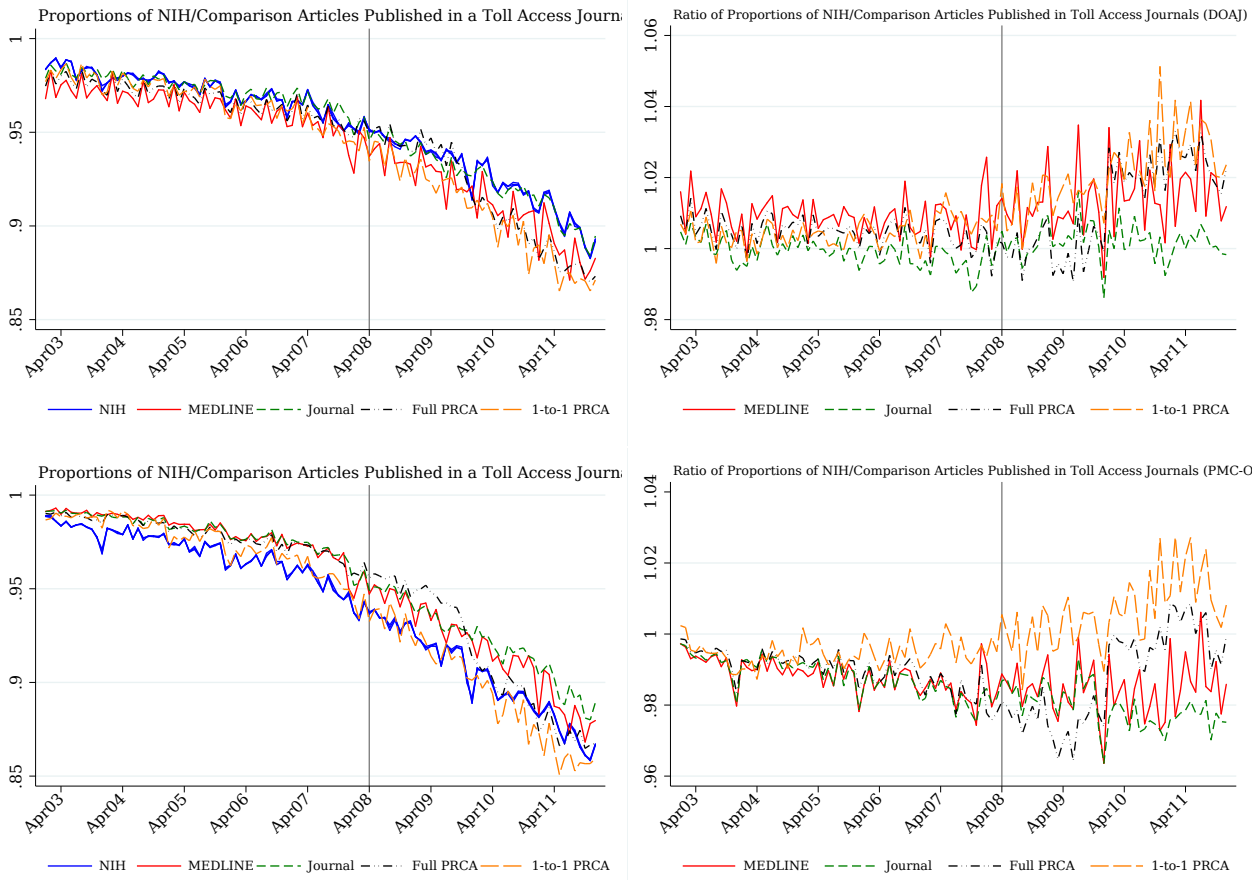
F Graphs

Figure F1: Trends in the Proportion of Articles in PubMed Central (PMC).



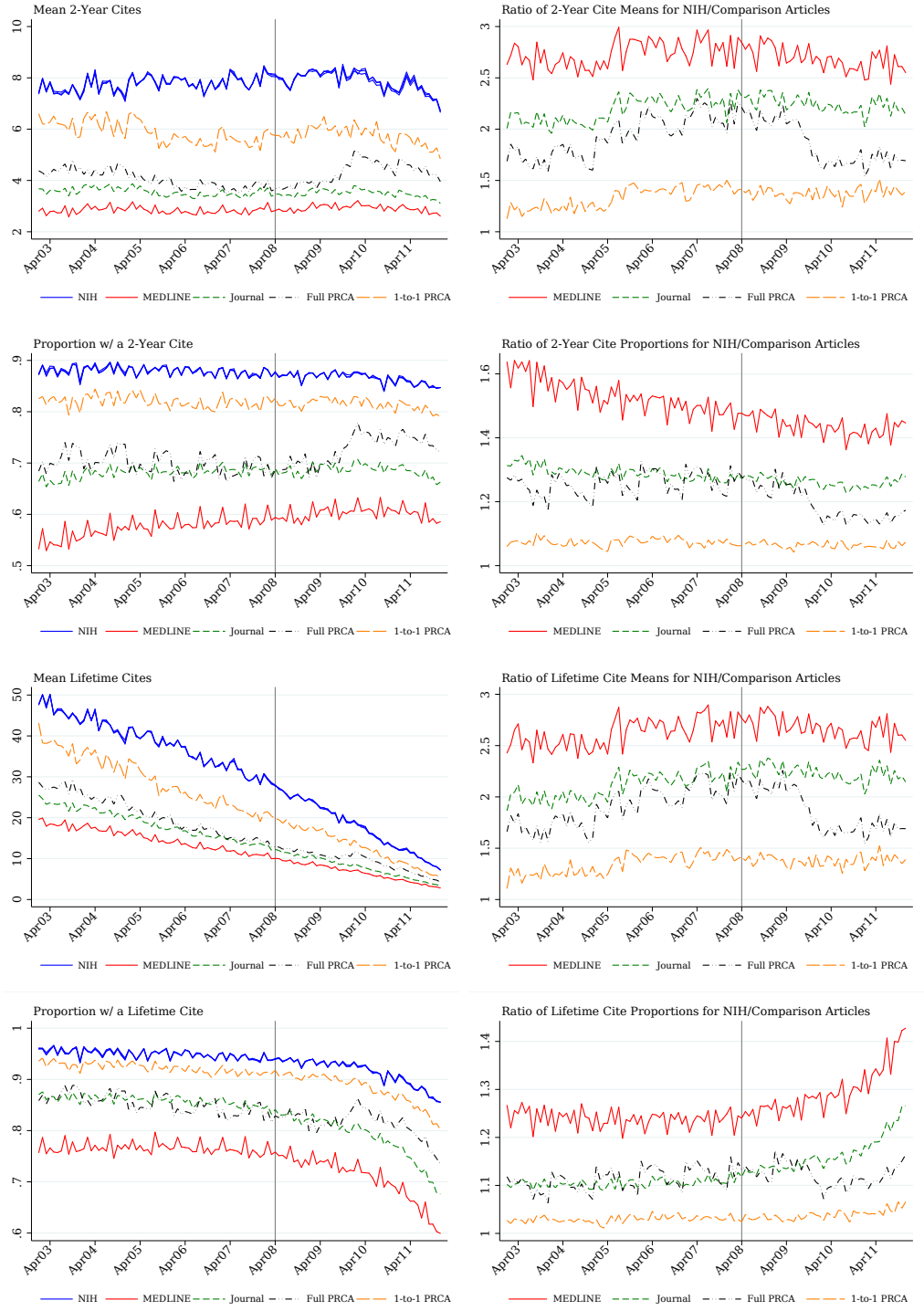
Notes – The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. The top graph displays the proportion of articles (NIH and comparison) available on PubMed Central (PMC). The bottom graph displays the proportion of articles available on PMC for NIH articles divided by the corresponding proportion for comparison articles. Availability in PMC is determined using data from the file PMC-ids.csv.gz, which can be obtained from: https://www.ncbi.nlm.nih.gov/pmc/pmctopmid/. The file contains information on which articles in PubMed are freely available on PubMed Central. Unfortunately, the file does not contain information on the date each article went "live" – only that the article is "live" on the date the data were downloaded (which, in my case, was 10/19/2018). The vertical gray lines denote the month that the PAP was implemented – April 2008.

Figure F2: Trends in the Proportion of Articles Published in a Toll Access (TA) Journal.



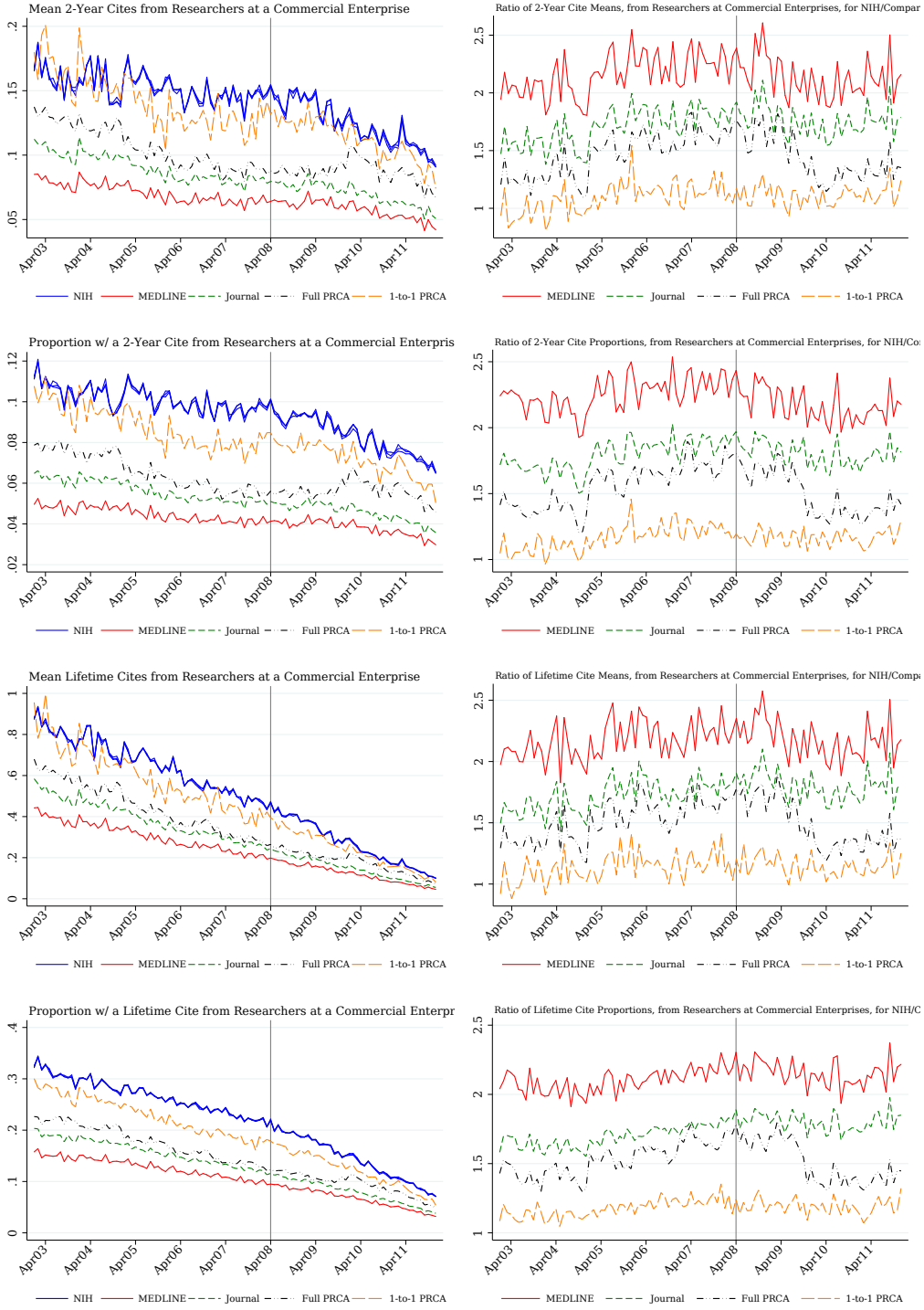
Notes – The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. The left column of graphs displays the means of the two toll access measures for NIH and comparison articles published in a given month between January 2003 and December 2011. The right column of graphs displays the means of each outcome for NIH articles divided by the corresponding means of each outcome for comparison articles. These ratios show how the outcomes for NIH articles change over time relative to comparison articles. The first outcome is an indicator for whether an article is published in a toll access journal, where a journal's toll/open access status is determined by whether it is indexed in the Directory of Open Access Journals (DOAJ). The second outcome measures, for the journal in which an article is published, the fraction of articles the that do *not* exist in the PubMed Central Open Access Subset (PMC-OAS) – i.e., the fraction of articles that are toll access. The vertical gray lines denote the month that the PAP was implemented – April 2008.

Figure F3: Trends in Forward Citation Outcomes.



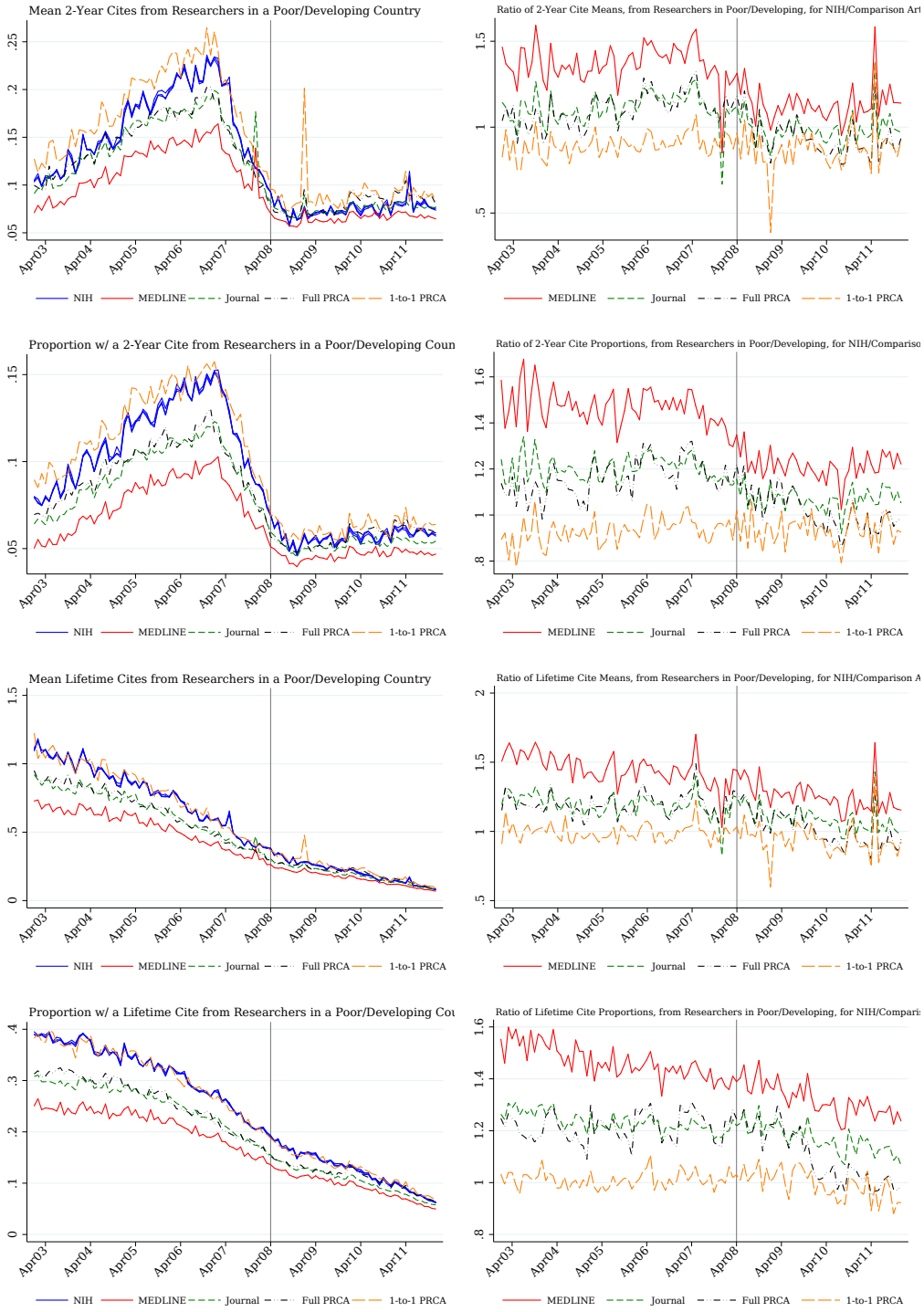
Notes – The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. The left column of graphs displays the means of the four main citation outcomes for NIH and comparison articles published in a given month between January 2003 and December 2011. The right column of graphs displays the means of each outcome for NIH articles divided by the corresponding means of each outcome for comparison articles. These ratios show how the outcomes for NIH articles change over time relative to comparison articles. The first outcome is the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The second outcome is the count of lifetime citations – i.e., the number of citations an article ever receives. The third and fourth outcomes are indicator variables for whether the 2-year and lifetime forward citation counts are positive. The vertical gray lines denote the month that the PAP was implemented – April 2008.

Figure F4: Trends in Forward Citation Outcomes from Researchers at Commercial Enterprises.



Notes – The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. The left column of graphs displays the means of the four citation outcomes from researchers at commercial enterprises for NIH and comparison articles published in a given month between January 2003 and December 2011. The right column of graphs displays the means of each outcome for NIH articles divided by the corresponding means of each outcome for comparison articles. These ratios show how the outcomes for NIH articles change over time relative to comparison articles. The first outcome is the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The second outcome is the count of lifetime citations – i.e., the number of citations an article ever receives. The third and fourth outcomes are indicator variables for whether the 2-year and lifetime forward citation counts are positive. The vertical gray lines denote the month that the PAP was implemented – April 2008.

Figure F5: Trends in Forward Citation Outcomes from Researchers in Poor/Developing Countries.



Notes – The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. The left column of graphs displays the means of the four citation outcomes from researchers in poor/developing countries for NIH and comparison articles published in a given month between January 2003 and December 2011. The right column of graphs displays the means of each outcome for NIH articles divided by the corresponding means of each outcome for comparison articles. These ratios show how the outcomes for NIH articles change over time relative to comparison articles. The first outcome is the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The second outcome is the count of lifetime citations – i.e., the number of citations an article ever receives. The third and fourth outcomes are indicator variables for whether the 2-year and lifetime forward citation counts are positive. The vertical gray lines denote the month that the PAP was implemented – April 2008.

Figure F6: Trends in the Count of NIH Articles.

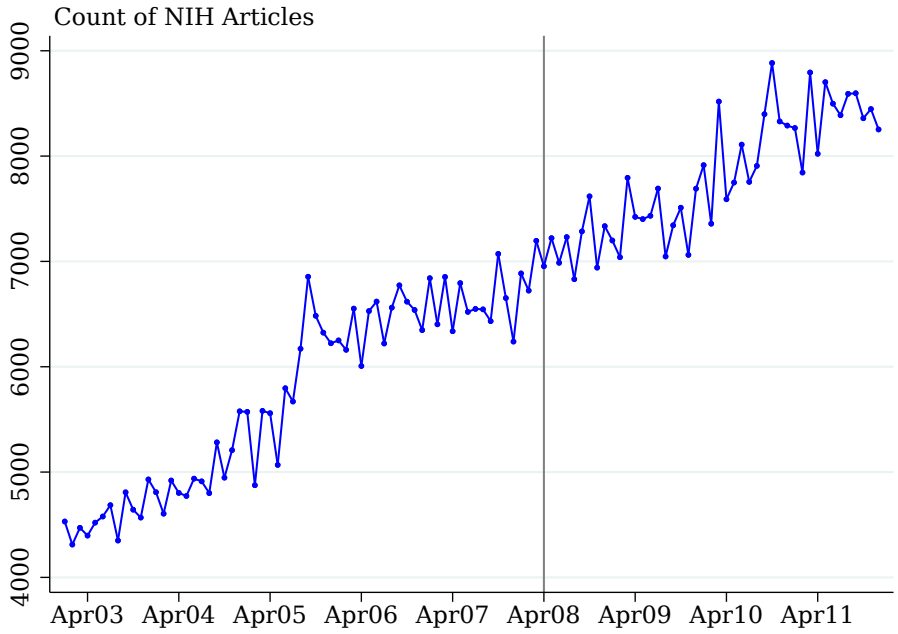
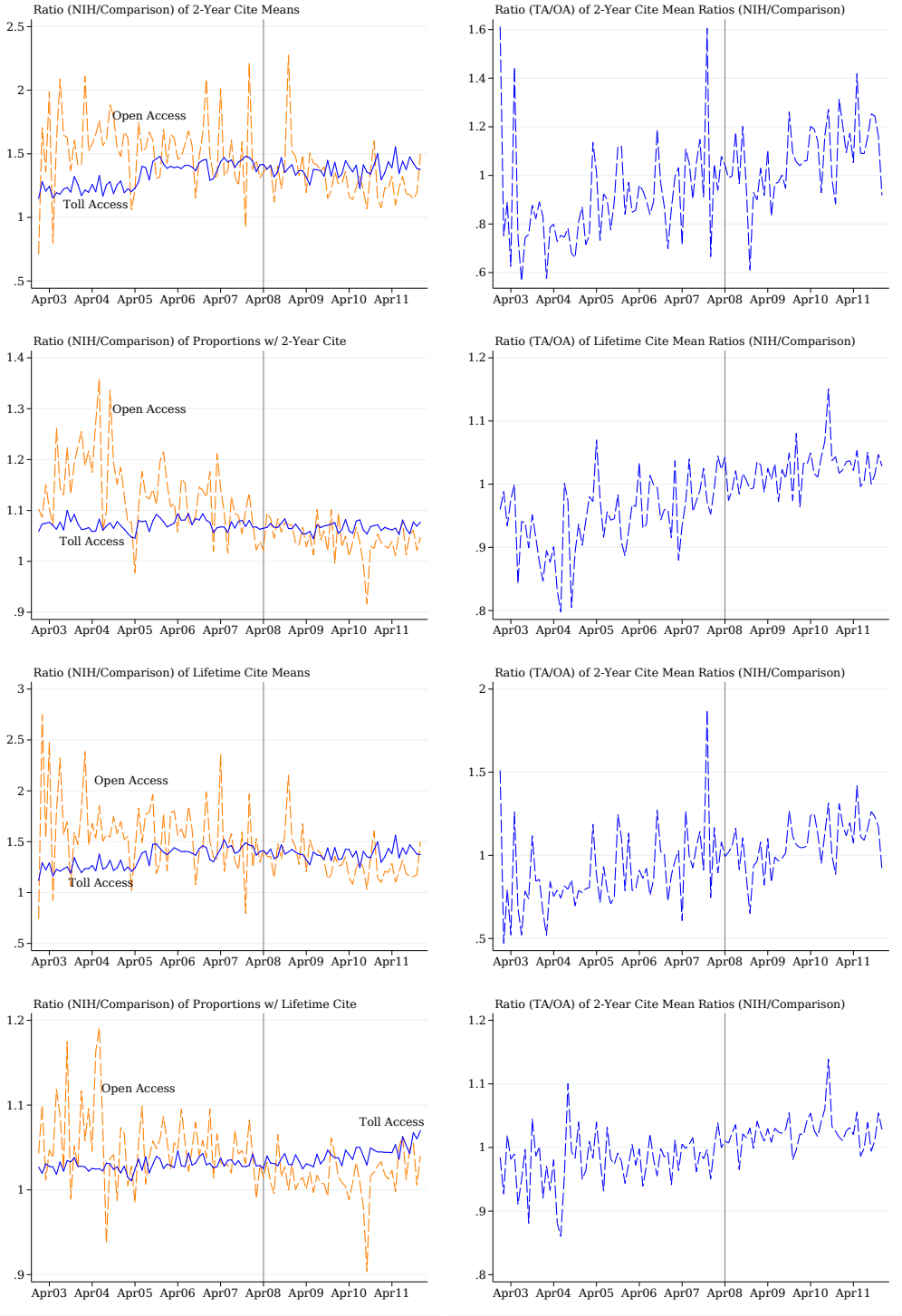


Figure F7: Trends in the Ratios of Forward Citation Outcomes for Articles Published in Toll/Open Access Journals.



Notes – The left column of graphs display the means of the four main citation outcomes for NIH and comparison articles published in a given month between January 2003 and December 2011. The right column of graphs display the means of each outcome for NIH articles divided by the corresponding means of each outcome for comparison articles. These ratios show how the outcomes for NIH articles change over time relative to comparison articles. The first outcome is the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The second outcome is the count of lifetime citations – i.e., the number of citations an article ever receives. The third and fourth outcomes are indicator variables for whether the 2-year and lifetime forward citation counts are positive. The vertical gray lines denote the month that the PAP was implemented – April 2008. There are 644,441 NIH and comparison articles for a total of 1,288,882 articles.

G Summary Statistics and Covariate Coefficients

Table G.1.1: Summary Statistics for the 1-to-1 PRCA (i.e. Main) Sample

	NIH Pre		Comp. Pre			NIH Post		Comp. Post			All	
	Mean	SD	Mean	SD	Std. Diff.	Mean	SD	Mean	SD	Std. Diff.	Mean	SD
Outcome Variables												
All-Yr For. Cites	37.93	73.45	28.42	58.85	0.14	17.41	37.53	12.63	29.69	0.14	24.36	54.14
All-Yr For. Cites (Indicator)	0.95	0.22	0.92	0.27	0.11	0.91	0.28	0.88	0.33	0.11	0.92	0.28
2-Yr For. Cites	7.81	12.98	5.84	11.41	0.16	7.88	16.55	5.73	14.07	0.14	6.82	13.87
2-Yr For. Cites (Indicator)	0.88	0.32	0.82	0.38	0.17	0.87	0.34	0.81	0.39	0.14	0.84	0.36
2-Yr Forward Cites (Com. Enterprise)	0.15	0.62	0.14	0.66	0.02	0.12	0.59	0.11	0.58	0.02	0.13	0.61
2-Yr Forward Cites (Dev. Country)	0.17	0.67	0.19	0.66	-0.03	0.08	0.59	0.09	1.40	-0.01	0.13	0.89
TA Journal (DOAJ)	0.97	0.17	0.97	0.18	0.03	0.92	0.26	0.90	0.29	0.07	0.94	0.23
TA Journal (PMC-OAS)	0.97	0.17	0.97	0.16	-0.03	0.90	0.27	0.89	0.28	0.02	0.94	0.23
Covariates												
Backward Cites	35.93	28.79	31.46	27.01	0.16	38.08	32.80	33.84	30.49	0.13	34.79	29.89
OA Backward Cites	0.47	1.29	0.44	1.24	0.03	1.07	2.17	1.00	2.13	0.03	0.74	1.78
Age 0 Top Concepts	0.02	0.20	0.02	0.19	0.01	0.03	0.23	0.03	0.24	0.00	0.03	0.22
Age $\leq$ 5 Top Concepts	0.35	0.96	0.36	0.99	-0.01	0.32	0.91	0.35	0.96	-0.03	0.34	0.95
Total Concepts	139.61	46.16	140.75	50.29	-0.02	140.95	48.76	142.69	52.18	-0.03	140.97	49.38
Total MeSH Descriptors	14.10	5.31	14.88	5.54	-0.14	13.48	5.24	14.36	5.42	-0.16	14.21	5.40
Total MeSH Qualifiers	9.18	5.85	9.93	6.12	-0.13	8.87	5.96	9.75	6.23	-0.14	9.44	6.05
Author Count	5.37	3.87	5.32	3.33	0.01	6.01	5.29	5.77	3.88	0.05	5.61	4.15
Corporate Author	0.00	0.01	0.00	0.04	-0.05	0.00	0.01	0.00	0.04	-0.05	0.00	0.03
Journal Article	0.99	0.11	0.98	0.14	0.05	0.98	0.15	0.97	0.16	0.02	0.98	0.14
Research Support, U.S. Gov't, Non-P.H.S.	0.14	0.35	0.04	0.20	0.35	0.13	0.34	0.03	0.18	0.36	0.09	0.28
Research Support, ARRA	0.00	0.00	0.00	0.00	.	0.00	0.03	0.00	0.01	0.05	0.00	0.02
Research Support, Non-U.S. Gov't	0.49	0.50	0.62	0.49	-0.26	0.49	0.50	0.64	0.48	-0.32	0.56	0.50
Review Article	0.10	0.30	0.10	0.30	-0.01	0.11	0.31	0.11	0.31	0.01	0.11	0.31
English Abstract	0.00	0.02	0.03	0.17	-0.24	0.00	0.02	0.03	0.16	-0.22	0.01	0.12
Case Report	0.01	0.10	0.01	0.11	-0.04	0.01	0.10	0.01	0.12	-0.04	0.01	0.11
Comparative Study	0.13	0.33	0.14	0.34	-0.03	0.07	0.25	0.07	0.26	-0.03	0.10	0.30
Meta-Analysis	0.00	0.05	0.00	0.05	-0.01	0.00	0.07	0.01	0.08	-0.02	0.00	0.06
Evaluation Studies	0.02	0.14	0.03	0.16	-0.03	0.02	0.12	0.02	0.14	-0.03	0.02	0.14
Guideline	0.00	0.01	0.00	0.02	-0.02	0.00	0.03	0.00	0.03	-0.01	0.00	0.02
Multicenter Study	0.02	0.13	0.02	0.12	0.01	0.02	0.14	0.02	0.14	0.01	0.02	0.13
Observational Study	0.00	0.00	0.00	0.00	.	0.00	0.00	0.00	0.00	-0.00	0.00	0.00
Randomized Controlled Trial	0.03	0.16	0.02	0.15	0.01	0.03	0.17	0.03	0.16	0.01	0.03	0.16
Technical Report	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	-0.00	0.00	0.01
Twin Study	0.00	0.04	0.00	0.03	0.02	0.00	0.04	0.00	0.03	0.02	0.00	0.04
Validation Studies	0.01	0.10	0.01	0.10	-0.00	0.01	0.09	0.01	0.09	0.00	0.01	0.09
Clinical Trial	0.03	0.17	0.03	0.17	-0.01	0.02	0.12	0.02	0.13	-0.01	0.02	0.15
Irregular Article	0.02	0.14	0.03	0.17	-0.07	0.04	0.19	0.04	0.20	-0.02	0.03	0.17
Other Language	0.00	0.01	0.00	0.07	-0.09	0.00	0.01	0.00	0.06	-0.09	0.00	0.05
English	1.00	0.02	0.97	0.18	0.25	1.00	0.02	0.97	0.16	0.23	0.98	0.12
German	0.00	0.00	0.00	0.06	-0.08	0.00	0.01	0.00	0.05	-0.07	0.00	0.04
French	0.00	0.01	0.00	0.06	-0.09	0.00	0.01	0.00	0.06	-0.08	0.00	0.04
Russian	0.00	0.01	0.00	0.05	-0.06	0.00	0.01	0.00	0.04	-0.06	0.00	0.03
Japanese	0.00	0.00	0.00	0.06	-0.08	0.00	0.00	0.00	0.05	-0.07	0.00	0.04
Spanish	0.00	0.01	0.00	0.05	-0.06	0.00	0.01	0.00	0.05	-0.07	0.00	0.04
Italian	0.00	0.00	0.00	0.03	-0.04	0.00	0.00	0.00	0.02	-0.03	0.00	0.02
Chinese	0.00	0.01	0.01	0.11	-0.16	0.00	0.01	0.01	0.10	-0.15	0.01	0.08
Other Grant Count	0.06	0.31	0.04	0.26	0.09	0.15	0.75	0.15	0.64	0.01	0.10	0.53
Commercial Affiliation	0.01	0.10	0.03	0.16	-0.13	0.01	0.09	0.02	0.15	-0.11	0.02	0.13
Educational Affiliation	0.65	0.48	0.57	0.49	0.16	0.65	0.48	0.57	0.50	0.15	0.61	0.49
Eductional/Hospital Affiliation	0.17	0.37	0.15	0.36	0.03	0.15	0.36	0.16	0.37	-0.03	0.16	0.37
Government Affiliation	0.00	0.05	0.00	0.07	-0.04	0.00	0.05	0.01	0.07	-0.05	0.00	0.06
Hospital Affiliation	0.07	0.25	0.07	0.25	-0.01	0.07	0.26	0.07	0.26	0.01	0.07	0.26
Military Affiliation	0.00	0.03	0.00	0.04	-0.03	0.00	0.03	0.00	0.04	-0.03	0.00	0.04
Organization Affiliation	0.09	0.28	0.13	0.34	-0.14	0.10	0.30	0.12	0.32	-0.07	0.11	0.31
Unkown Affiliation	0.02	0.13	0.04	0.20	-0.14	0.02	0.14	0.05	0.21	-0.15	0.03	0.17
Observations	331,384		331,458			313,057		312,983			1,288,882	

Notes –.

Table G.1.2: Summary Statistics for the Full PRCA Sample

	NIH Pre		Comp. Pre			NIH Post		Comp. Post			All	
	Mean	SD	Mean	SD	Std. Diff.	Mean	SD	Mean	SD	Std. Diff.	Mean	SD
Outcome Variables												
All-Yr For. Cites	37.81	72.72	19.84	48.76	0.29	17.43	37.51	9.65	22.25	0.25	18.22	45.19
All-Yr For. Cites (Indicator)	0.95	0.22	0.85	0.36	0.33	0.91	0.28	0.81	0.39	0.29	0.86	0.35
2-Yr For. Cites	7.78	12.91	3.99	8.91	0.34	7.88	16.36	4.22	9.98	0.27	4.94	10.94
2-Yr For. Cites (Indicator)	0.88	0.33	0.70	0.46	0.46	0.86	0.34	0.72	0.45	0.36	0.74	0.44
2-Yr Forward Cites (Com. Enterprise)	0.15	0.63	0.10	0.56	0.08	0.12	0.58	0.09	0.51	0.07	0.11	0.55
2-Yr Forward Cites (Dev. Country)	0.17	0.66	0.15	0.61	0.03	0.08	0.58	0.08	0.85	-0.01	0.12	0.70
TA Journal (DOAJ)	0.97	0.17	0.97	0.18	0.03	0.92	0.26	0.92	0.27	0.02	0.95	0.23
TA Journal (PMC-OAS)	0.97	0.17	0.98	0.14	-0.06	0.90	0.27	0.92	0.25	-0.07	0.95	0.21
Covariates												
Backward Cites	36.01	29.24	23.81	26.63	0.44	38.27	33.09	26.73	29.14	0.37	27.80	29.04
OA Backward Cites	0.48	1.31	0.33	1.09	0.12	1.07	2.17	0.76	1.93	0.15	0.58	1.60
Age 0 Top Concepts	0.02	0.20	0.02	0.17	0.04	0.03	0.23	0.02	0.21	0.03	0.02	0.19
Age $\leq$ 5 Top Concepts	0.34	0.95	0.25	0.82	0.10	0.32	0.91	0.27	0.83	0.06	0.28	0.85
Total Concepts	139.39	46.24	118.09	56.70	0.41	140.88	48.55	124.50	56.81	0.31	125.23	55.43
Total MeSH Descriptors	14.05	5.30	12.45	5.59	0.29	13.46	5.23	12.46	5.62	0.18	12.75	5.56
Total MeSH Qualifiers	9.14	5.83	7.75	5.45	0.25	8.87	5.95	7.86	5.65	0.17	8.07	5.64
Author Count	5.36	3.87	4.77	3.27	0.17	5.98	5.23	5.20	3.67	0.17	5.11	3.75
Corporate Author	0.00	0.01	0.01	0.08	-0.11	0.00	0.01	0.00	0.07	-0.10	0.00	0.07
Journal Article	0.99	0.11	0.94	0.24	0.26	0.98	0.15	0.94	0.24	0.18	0.95	0.22
Research Support, U.S. Gov't, Non-P.H.S.	0.14	0.35	0.03	0.18	0.39	0.13	0.34	0.03	0.18	0.36	0.06	0.23
Research Support, ARRA	0.00	0.00	0.00	0.00	.	0.00	0.03	0.00	0.00	0.05	0.00	0.01
Research Support, Non-U.S. Gov't	0.49	0.50	0.47	0.50	0.03	0.49	0.50	0.52	0.50	-0.06	0.49	0.50
Review Article	0.10	0.30	0.12	0.33	-0.07	0.11	0.32	0.11	0.32	-0.00	0.12	0.32
English Abstract	0.00	0.02	0.05	0.22	-0.32	0.00	0.02	0.04	0.20	-0.29	0.04	0.19
Case Report	0.01	0.09	0.04	0.19	-0.20	0.01	0.10	0.04	0.19	-0.18	0.03	0.18
Comparative Study	0.13	0.33	0.12	0.32	0.03	0.07	0.25	0.07	0.26	-0.02	0.10	0.30
Meta-Analysis	0.00	0.05	0.00	0.06	-0.01	0.00	0.06	0.01	0.07	-0.02	0.00	0.06
Evaluation Studies	0.02	0.14	0.03	0.16	-0.04	0.02	0.12	0.02	0.15	-0.06	0.02	0.15
Guideline	0.00	0.02	0.00	0.04	-0.04	0.00	0.02	0.00	0.04	-0.03	0.00	0.03
Multicenter Study	0.02	0.13	0.02	0.12	0.01	0.02	0.14	0.02	0.14	0.01	0.02	0.13
Observational Study	0.00	0.00	0.00	0.00	.	0.00	0.00	0.00	0.01	-0.00	0.00	0.00
Randomized Controlled Trial	0.03	0.16	0.03	0.16	0.00	0.03	0.17	0.03	0.16	0.01	0.03	0.16
Technical Report	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	-0.00	0.00	0.01
Twin Study	0.00	0.05	0.00	0.03	0.04	0.00	0.05	0.00	0.03	0.04	0.00	0.03
Validation Studies	0.01	0.10	0.01	0.10	-0.00	0.01	0.09	0.01	0.09	-0.01	0.01	0.09
Clinical Trial	0.03	0.17	0.03	0.18	-0.01	0.02	0.12	0.02	0.13	-0.01	0.02	0.16
Irregular Article	0.02	0.14	0.08	0.27	-0.27	0.04	0.19	0.08	0.26	-0.17	0.06	0.25
Other Language	0.00	0.01	0.01	0.10	-0.14	0.00	0.01	0.01	0.10	-0.13	0.01	0.09
English	1.00	0.02	0.94	0.24	0.36	1.00	0.02	0.95	0.22	0.32	0.95	0.21
German	0.00	0.00	0.01	0.09	-0.13	0.00	0.01	0.01	0.08	-0.11	0.01	0.08
French	0.00	0.01	0.01	0.09	-0.13	0.00	0.01	0.01	0.09	-0.12	0.01	0.08
Russian	0.00	0.01	0.01	0.07	-0.10	0.00	0.01	0.00	0.06	-0.08	0.00	0.06
Japanese	0.00	0.00	0.01	0.09	-0.12	0.00	0.00	0.00	0.07	-0.10	0.01	0.07
Spanish	0.00	0.01	0.01	0.08	-0.11	0.00	0.01	0.01	0.08	-0.11	0.00	0.07
Italian	0.00	0.00	0.00	0.04	-0.06	0.00	0.00	0.00	0.04	-0.05	0.00	0.03
Chinese	0.00	0.01	0.02	0.13	-0.18	0.00	0.01	0.01	0.12	-0.17	0.01	0.11
Other Grant Count	0.06	0.32	0.03	0.23	0.13	0.15	0.79	0.09	0.50	0.09	0.07	0.44
Commercial Affiliation	0.01	0.10	0.03	0.16	-0.13	0.01	0.09	0.02	0.15	-0.11	0.02	0.15
Educational Affiliation	0.65	0.48	0.51	0.50	0.28	0.65	0.48	0.53	0.50	0.24	0.55	0.50
Eductional/Hospital Affiliation	0.16	0.37	0.16	0.37	0.01	0.15	0.36	0.17	0.37	-0.04	0.16	0.37
Government Affiliation	0.00	0.05	0.00	0.07	-0.05	0.00	0.05	0.01	0.07	-0.05	0.00	0.07
Hospital Affiliation	0.07	0.25	0.09	0.29	-0.08	0.07	0.26	0.09	0.28	-0.05	0.08	0.28
Military Affiliation	0.00	0.03	0.00	0.04	-0.03	0.00	0.03	0.00	0.04	-0.03	0.00	0.04
Organization Affiliation	0.09	0.28	0.11	0.31	-0.08	0.10	0.30	0.11	0.31	-0.03	0.11	0.31
Unkown Affiliation	0.02	0.13	0.09	0.29	-0.33	0.02	0.14	0.08	0.28	-0.29	0.07	0.26
Observations	354,079		1,340,785			339,134		1,033,681			3,067,679	

Notes –.

Table G.1.3: Summary Statistics for the Journal Sample

	NIH Pre		Comp. Pre			NIH Post		Comp. Post			All	
	Mean	SD	Mean	SD	Std. Diff.	Mean	SD	Mean	SD	Std. Diff.	Mean	SD
Outcome Variables												
All-Yr For. Cites	37.73	72.63	18.15	47.03	0.32	17.30	37.20	7.70	18.66	0.33	15.21	40.91
All-Yr For. Cites (Indicator)	0.95	0.22	0.86	0.35	0.31	0.91	0.28	0.78	0.41	0.37	0.84	0.37
2-Yr For. Cites	7.76	12.86	3.55	9.67	0.37	7.81	16.18	3.49	8.21	0.34	4.14	10.12
2-Yr For. Cites (Indicator)	0.88	0.33	0.68	0.47	0.49	0.86	0.34	0.69	0.46	0.44	0.71	0.45
2-Yr Forward Cites (Com. Enterprise)	0.15	0.62	0.09	0.52	0.11	0.12	0.58	0.07	0.44	0.10	0.09	0.51
2-Yr Forward Cites (Dev. Country)	0.16	0.66	0.15	1.80	0.01	0.07	0.57	0.08	0.67	-0.00	0.11	1.29
TA Journal (DOAJ)	0.97	0.17	0.97	0.16	-0.01	0.92	0.26	0.92	0.27	0.01	0.95	0.22
TA Journal (PMC-OAS)	0.97	0.17	0.98	0.14	-0.08	0.90	0.27	0.92	0.25	-0.07	0.95	0.21
Covariates												
Backward Cites	36.06	29.20	20.79	24.73	0.56	38.36	33.02	22.98	26.61	0.51	24.07	27.09
OA Backward Cites	0.48	1.31	0.29	1.01	0.16	1.06	2.16	0.62	1.70	0.23	0.49	1.47
Age 0 Top Concepts	0.02	0.20	0.02	0.17	0.04	0.03	0.23	0.02	0.21	0.04	0.02	0.19
Age $\leq$ 5 Top Concepts	0.34	0.95	0.23	0.78	0.12	0.31	0.90	0.22	0.76	0.11	0.24	0.80
Total Concepts	139.41	46.18	108.68	58.82	0.58	140.96	48.43	112.89	58.92	0.52	114.98	58.30
Total MeSH Descriptors	14.03	5.29	11.31	5.72	0.49	13.44	5.22	10.95	5.93	0.45	11.52	5.82
Total MeSH Qualifiers	9.13	5.82	6.90	5.24	0.40	8.87	5.93	6.77	5.38	0.37	7.15	5.45
Author Count	5.35	3.86	4.65	7.75	0.11	5.97	5.19	5.03	12.21	0.10	4.96	9.55
Corporate Author	0.00	0.01	0.01	0.08	-0.11	0.00	0.01	0.01	0.07	-0.10	0.00	0.07
Journal Article	0.99	0.11	0.91	0.29	0.37	0.98	0.15	0.91	0.29	0.30	0.92	0.27
Research Support, U.S. Gov't, Non-P.H.S.	0.14	0.35	0.03	0.18	0.39	0.13	0.34	0.03	0.17	0.37	0.05	0.21
Research Support, ARRA	0.00	0.00	0.00	0.00	.	0.00	0.03	0.00	0.00	0.05	0.00	0.01
Research Support, Non-U.S. Gov't	0.48	0.50	0.41	0.49	0.16	0.48	0.50	0.44	0.50	0.08	0.43	0.50
Review Article	0.10	0.30	0.11	0.31	-0.02	0.11	0.32	0.10	0.29	0.05	0.10	0.30
English Abstract	0.00	0.02	0.01	0.10	-0.14	0.00	0.02	0.01	0.10	-0.14	0.01	0.10
Case Report	0.01	0.09	0.07	0.26	-0.32	0.01	0.10	0.07	0.25	-0.29	0.06	0.24
Comparative Study	0.13	0.33	0.11	0.31	0.06	0.07	0.25	0.06	0.25	0.01	0.09	0.28
Meta-Analysis	0.00	0.05	0.00	0.06	-0.02	0.00	0.06	0.01	0.08	-0.03	0.00	0.07
Evaluation Studies	0.02	0.14	0.03	0.16	-0.04	0.01	0.12	0.02	0.14	-0.05	0.02	0.15
Guideline	0.00	0.02	0.00	0.04	-0.05	0.00	0.02	0.00	0.04	-0.03	0.00	0.04
Multicenter Study	0.02	0.13	0.02	0.12	0.01	0.02	0.14	0.02	0.13	0.03	0.02	0.13
Observational Study	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.01	-0.00	0.00	0.00
Randomized Controlled Trial	0.03	0.16	0.03	0.16	-0.01	0.03	0.17	0.03	0.16	0.02	0.03	0.16
Technical Report	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	-0.00	0.00	0.01
Twin Study	0.00	0.05	0.00	0.02	0.05	0.00	0.05	0.00	0.02	0.05	0.00	0.03
Validation Studies	0.01	0.10	0.01	0.10	0.01	0.01	0.09	0.01	0.09	-0.00	0.01	0.09
Clinical Trial	0.03	0.17	0.03	0.18	-0.02	0.02	0.12	0.01	0.12	0.00	0.02	0.15
Irregular Article	0.02	0.14	0.11	0.32	-0.39	0.04	0.19	0.11	0.32	-0.30	0.10	0.30
Other Language	0.00	0.01	0.00	0.06	-0.08	0.00	0.01	0.00	0.05	-0.07	0.00	0.05
English	1.00	0.02	0.99	0.12	0.17	1.00	0.02	0.99	0.12	0.16	0.99	0.11
German	0.00	0.00	0.00	0.03	-0.03	0.00	0.01	0.00	0.03	-0.04	0.00	0.03
French	0.00	0.01	0.00	0.05	-0.07	0.00	0.01	0.00	0.05	-0.07	0.00	0.05
Russian	0.00	0.01	0.00	0.04	-0.04	0.00	0.01	0.00	0.03	-0.04	0.00	0.03
Japanese	0.00	0.00	0.00	0.02	-0.03	0.00	0.00	0.00	0.03	-0.04	0.00	0.02
Spanish	0.00	0.01	0.00	0.05	-0.06	0.00	0.01	0.00	0.06	-0.08	0.00	0.05
Italian	0.00	0.00	0.00	0.03	-0.04	0.00	0.00	0.00	0.01	-0.02	0.00	0.02
Chinese	0.00	0.01	0.00	0.07	-0.09	0.00	0.01	0.00	0.06	-0.08	0.00	0.06
Other Grant Count	0.06	0.32	0.02	0.21	0.15	0.15	0.79	0.06	0.41	0.14	0.05	0.38
Commercial Affiliation	0.01	0.10	0.03	0.16	-0.12	0.01	0.09	0.02	0.15	-0.10	0.02	0.15
Educational Affiliation	0.65	0.48	0.49	0.50	0.32	0.65	0.48	0.52	0.50	0.27	0.53	0.50
Eductional/Hospital Affiliation	0.16	0.37	0.16	0.36	0.02	0.15	0.36	0.16	0.36	-0.02	0.16	0.36
Government Affiliation	0.00	0.05	0.01	0.07	-0.05	0.00	0.05	0.01	0.07	-0.05	0.01	0.07
Hospital Affiliation	0.07	0.25	0.10	0.30	-0.11	0.07	0.26	0.09	0.29	-0.07	0.09	0.29
Military Affiliation	0.00	0.03	0.00	0.05	-0.04	0.00	0.03	0.00	0.04	-0.03	0.00	0.04
Organization Affiliation	0.09	0.28	0.11	0.31	-0.06	0.10	0.30	0.10	0.30	-0.01	0.10	0.30
Unkown Affiliation	0.02	0.13	0.11	0.32	-0.40	0.02	0.14	0.10	0.30	-0.36	0.10	0.29
Observations	361,767		2,174,983			350,602		2,031,079			4,918,431	

Notes –.

Table G.1.4: Summary Statistics for the MEDLINE Sample

	NIH Pre		Comp. Pre			NIH Post		Comp. Post			All	
	Mean	SD	Mean	SD	Std. Diff.	Mean	SD	Mean	SD	Std. Diff.	Mean	SD
Outcome Variables												
All-Yr For. Cites	37.73	72.63	14.60	41.86	0.39	17.30	37.20	6.44	16.96	0.38	12.73	37.23
All-Yr For. Cites (Indicator)	0.95	0.22	0.77	0.42	0.54	0.91	0.28	0.70	0.46	0.55	0.76	0.43
2-Yr For. Cites	7.76	12.86	2.83	8.60	0.45	7.81	16.18	2.91	7.47	0.39	3.44	9.22
2-Yr For. Cites (Indicator)	0.88	0.33	0.58	0.49	0.72	0.86	0.34	0.60	0.49	0.62	0.62	0.49
2-Yr Forward Cites (Com. Enterprise)	0.15	0.62	0.07	0.46	0.15	0.12	0.58	0.06	0.40	0.13	0.07	0.46
2-Yr Forward Cites (Dev. Country)	0.16	0.66	0.12	1.57	0.04	0.07	0.57	0.07	0.60	0.02	0.10	1.16
TA Journal (DOAJ)	0.97	0.17	0.96	0.19	0.04	0.92	0.26	0.91	0.28	0.05	0.94	0.24
TA Journal (PMC-OAS)	0.97	0.17	0.98	0.14	-0.08	0.90	0.27	0.92	0.26	-0.05	0.95	0.21
Covariates												
Backward Cites	36.06	29.20	17.24	23.57	0.71	38.36	33.02	19.81	25.59	0.63	20.64	26.13
OA Backward Cites	0.48	1.31	0.24	0.92	0.21	1.06	2.16	0.54	1.58	0.28	0.42	1.36
Age 0 Top Concepts	0.02	0.20	0.01	0.16	0.05	0.03	0.23	0.02	0.20	0.05	0.02	0.18
Age $\leq$ 5 Top Concepts	0.34	0.95	0.20	0.73	0.17	0.31	0.90	0.20	0.72	0.14	0.21	0.76
Total Concepts	139.41	46.18	101.63	60.72	0.70	140.96	48.43	108.00	60.17	0.60	108.77	60.24
Total MeSH Descriptors	14.03	5.29	10.84	5.65	0.58	13.44	5.22	10.49	5.96	0.53	11.03	5.82
Total MeSH Qualifiers	9.13	5.82	6.51	5.09	0.48	8.87	5.93	6.39	5.30	0.44	6.75	5.34
Author Count	5.35	3.86	4.36	6.91	0.18	5.97	5.19	4.79	10.99	0.14	4.69	8.67
Corporate Author	0.00	0.01	0.01	0.12	-0.16	0.00	0.01	0.01	0.10	-0.13	0.01	0.10
Journal Article	0.99	0.11	0.90	0.30	0.38	0.98	0.15	0.91	0.29	0.30	0.91	0.28
Research Support, U.S. Gov't, Non-P.H.S.	0.14	0.35	0.03	0.16	0.43	0.13	0.34	0.03	0.16	0.40	0.04	0.19
Research Support, ARRA	0.00	0.00	0.00	0.00	.	0.00	0.03	0.00	0.00	0.05	0.00	0.01
Research Support, Non-U.S. Gov't	0.48	0.50	0.34	0.47	0.29	0.48	0.50	0.39	0.49	0.20	0.38	0.48
Review Article	0.10	0.30	0.12	0.32	-0.05	0.11	0.32	0.10	0.30	0.05	0.11	0.31
English Abstract	0.00	0.02	0.07	0.26	-0.39	0.00	0.02	0.06	0.23	-0.35	0.06	0.23
Case Report	0.01	0.09	0.09	0.28	-0.37	0.01	0.10	0.08	0.27	-0.33	0.07	0.26
Comparative Study	0.13	0.33	0.10	0.30	0.09	0.07	0.25	0.06	0.24	0.02	0.08	0.28
Meta-Analysis	0.00	0.05	0.00	0.06	-0.02	0.00	0.06	0.01	0.07	-0.02	0.00	0.06
Evaluation Studies	0.02	0.14	0.02	0.15	-0.02	0.01	0.12	0.02	0.14	-0.04	0.02	0.15
Guideline	0.00	0.02	0.00	0.05	-0.05	0.00	0.02	0.00	0.04	-0.03	0.00	0.04
Multicenter Study	0.02	0.13	0.01	0.12	0.03	0.02	0.14	0.01	0.12	0.04	0.01	0.12
Observational Study	0.00	0.00	0.00	0.00	-0.00	0.00	0.00	0.00	0.01	-0.00	0.00	0.00
Randomized Controlled Trial	0.03	0.16	0.02	0.15	0.01	0.03	0.17	0.02	0.15	0.03	0.02	0.15
Technical Report	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.01	-0.00	0.00	0.01
Twin Study	0.00	0.05	0.00	0.02	0.05	0.00	0.05	0.00	0.02	0.05	0.00	0.02
Validation Studies	0.01	0.10	0.01	0.09	0.02	0.01	0.09	0.01	0.08	0.01	0.01	0.09
Clinical Trial	0.03	0.17	0.03	0.17	-0.00	0.02	0.12	0.01	0.12	0.01	0.02	0.15
Irregular Article	0.02	0.14	0.12	0.32	-0.40	0.04	0.19	0.11	0.32	-0.30	0.11	0.31
Other Language	0.00	0.01	0.02	0.13	-0.19	0.00	0.01	0.01	0.12	-0.17	0.01	0.12
English	1.00	0.02	0.90	0.30	0.47	1.00	0.02	0.92	0.27	0.41	0.92	0.27
German	0.00	0.00	0.01	0.12	-0.17	0.00	0.01	0.01	0.10	-0.14	0.01	0.10
French	0.00	0.01	0.02	0.12	-0.18	0.00	0.01	0.01	0.11	-0.16	0.01	0.11
Russian	0.00	0.01	0.01	0.09	-0.12	0.00	0.01	0.01	0.07	-0.10	0.01	0.07
Japanese	0.00	0.00	0.01	0.11	-0.16	0.00	0.00	0.01	0.09	-0.13	0.01	0.09
Spanish	0.00	0.01	0.01	0.11	-0.15	0.00	0.01	0.01	0.10	-0.15	0.01	0.10
Italian	0.00	0.00	0.00	0.06	-0.08	0.00	0.00	0.00	0.05	-0.06	0.00	0.05
Chinese	0.00	0.01	0.02	0.15	-0.22	0.00	0.01	0.02	0.15	-0.21	0.02	0.14
Other Grant Count	0.06	0.32	0.02	0.18	0.18	0.15	0.79	0.05	0.37	0.16	0.04	0.34
Commercial Affiliation	0.01	0.10	0.02	0.15	-0.11	0.01	0.09	0.02	0.14	-0.09	0.02	0.14
Educational Affiliation	0.65	0.48	0.45	0.50	0.42	0.65	0.48	0.48	0.50	0.34	0.48	0.50
Eductional/Hospital Affiliation	0.16	0.37	0.16	0.37	-0.00	0.15	0.36	0.17	0.37	-0.05	0.17	0.37
Government Affiliation	0.00	0.05	0.01	0.07	-0.05	0.00	0.05	0.01	0.07	-0.05	0.00	0.07
Hospital Affiliation	0.07	0.25	0.12	0.32	-0.17	0.07	0.26	0.11	0.31	-0.11	0.11	0.31
Military Affiliation	0.00	0.03	0.00	0.04	-0.03	0.00	0.03	0.00	0.04	-0.03	0.00	0.04
Organization Affiliation	0.09	0.28	0.10	0.30	-0.03	0.10	0.30	0.10	0.29	0.01	0.10	0.30
Unkown Affiliation	0.02	0.13	0.15	0.35	-0.48	0.02	0.14	0.12	0.33	-0.42	0.12	0.33
Observations	361,767		2,852,455			350,602		2,544,127			6,108,951	

Notes –.

Table G2: Covariates for 1-to-1 PRCA (i.e., Main) DiD Specifications

	2-Year Cites (Count)		*2-Year Cites (Dummy)*		*Lifetime Cites (Count)*		*Lifetime Cites (Dummy)*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Jan 07 - Dec 09	Jan 03 - Dec 11	Jan 07 - Dec 09	Jan 03 - Dec 11	Jan 07 - Dec 09	Jan 03 - Dec 11	Jan 07 - Dec 09	Jan 03 - Dec 11
NIH Article	0.052 (0.0130)	0.048 (0.0095)	0.011 (0.0020)	0.016 (0.0013)	0.064 (0.0122)	0.053 (0.0087)	0.004 (0.0012)	0.002 (0.0008)
Post 2008	-0.029 (0.0293)	-0.157 (0.0249)	0.003 (0.0050)	0.006 (0.0062)	-0.614 (0.0242)	-1.966 (0.0259)	-0.016 (0.0034)	-0.109 (0.0058)
NIH × Post 2008	-0.020 (0.0105)	-0.020 (0.0083)	-0.001 (0.0022)	-0.010 (0.0016)	-0.017 (0.0114)	-0.021 (0.0088)	0.002 (0.0013)	0.008 (0.0013)
Backward Cites	0.003 (0.0004)	0.003 (0.0003)	0.001 (0.0001)	0.001 (0.0001)	0.003 (0.0004)	0.003 (0.0003)	0.001 (0.0000)	0.001 (0.0000)
OA Backward Cites	0.016 (0.0028)	0.011 (0.0023)	0.001 (0.0004)	0.001 (0.0003)	0.013 (0.0029)	0.008 (0.0023)	0.001 (0.0002)	0.002 (0.0002)
Age 0 Top Concepts	0.151 (0.0117)	0.115 (0.0080)	-0.001 (0.0025)	-0.002 (0.0013)	0.165 (0.0170)	0.160 (0.0123)	-0.003 (0.0025)	0.001 (0.0010)
Age 5 Top Concepts	0.129 (0.0029)	0.126 (0.0021)	0.012 (0.0008)	0.012 (0.0007)	0.130 (0.0032)	0.121 (0.0026)	0.003 (0.0003)	0.003 (0.0003)
Total Concepts	0.002 (0.0001)	0.001 (0.0001)	0.000 (0.0000)	0.000 (0.0000)	0.002 (0.0002)	0.002 (0.0001)	0.000 (0.0000)	0.000 (0.0000)
Total MeSH Descriptors	0.011 (0.0018)	0.010 (0.0012)	0.002 (0.0002)	0.002 (0.0002)	0.012 (0.0017)	0.011 (0.0012)	0.001 (0.0001)	0.001 (0.0002)
Total MeSH Qualifiers	-0.003 (0.0011)	-0.003 (0.0008)	0.000 (0.0001)	0.000 (0.0001)	-0.004 (0.0010)	-0.004 (0.0009)	-0.000 (0.0001)	0.000 (0.0001)
Author Count	0.008 (0.0017)	0.009 (0.0016)	0.002 (0.0005)	0.002 (0.0004)	0.008 (0.0018)	0.009 (0.0019)	0.000 (0.0003)	0.001 (0.0002)
Corporate Author	-20.358 (0.9256)	-20.693 (0.6475)	-17.133 (0.2600)	-18.130 (0.3449)	-20.629 (1.0219)	-22.046 (0.8151)	-17.191 (0.2429)	-18.594 (0.3149)
Journal Article	-0.157 (0.2028)	-0.119 (0.1718)	-0.029 (0.0227)	-0.045 (0.0186)	-0.126 (0.2130)	-0.151 (0.1829)	-0.033 (0.0148)	-0.029 (0.0131)
Res. Supp. U.S. Govt., Non-PHS	-0.005 (0.0113)	0.007 (0.0062)	0.006 (0.0019)	0.005 (0.0012)	-0.003 (0.0121)	0.016 (0.0074)	0.002 (0.0009)	0.002 (0.0007)
Res. Supp. ARRA	0.605 (0.0709)	0.167 (0.1012)	0.067 (0.0523)	0.005 (0.0141)	0.704 (0.0702)	0.280 (0.1422)	0.017 (0.0125)	0.006 (0.0126)
Res. Supp., Non-U.S. Govt.	0.088 (0.0099)	0.091 (0.0083)	0.016 (0.0013)	0.015 (0.0009)	0.091 (0.0096)	0.089 (0.0076)	0.006 (0.0007)	0.006 (0.0005)
Review Article	0.616 (0.0315)	0.592 (0.0243)	0.055 (0.0040)	0.051 (0.0036)	0.660 (0.0314)	0.639 (0.0228)	0.007 (0.0023)	0.007 (0.0023)
English Abstract	0.624 (0.2934)	0.480 (0.1810)	1.029 (0.2264)	0.933 (0.1315)	0.840 (0.2928)	0.820 (0.1977)	0.922 (0.1998)	0.856 (0.1255)
Case Report	-0.333 (0.0274)	-0.291 (0.0213)	-0.131 (0.0109)	-0.131 (0.0078)	-0.389 (0.0254)	-0.354 (0.0240)	-0.043 (0.0065)	-0.051 (0.0046)
Comparative Study	0.011 (0.0088)	0.021 (0.0062)	0.008 (0.0022)	0.008 (0.0013)	0.014 (0.0099)	0.019 (0.0069)	0.001 (0.0014)	0.004 (0.0008)
Meta-Analysis	0.408 (0.0389)	0.358 (0.0240)	0.035 (0.0076)	0.033 (0.0063)	0.449 (0.0414)	0.452 (0.0329)	0.008 (0.0043)	0.011 (0.0044)
Evaluation Studies	0.021 (0.0209)	-0.006 (0.0146)	-0.004 (0.0046)	-0.003 (0.0030)	0.012 (0.0211)	-0.006 (0.0145)	0.001 (0.0023)	0.003 (0.0017)
Guidline	0.821 (0.1250)	0.730 (0.1787)	-0.059 (0.0334)	-0.046 (0.0236)	0.982 (0.1233)	0.950 (0.1828)	-0.084 (0.0292)	-0.077 (0.0226)
Multicenter Study	0.180 (0.0197)	0.212 (0.0232)	0.003 (0.0042)	0.005 (0.0035)	0.174 (0.0194)	0.205 (0.0214)	-0.002 (0.0026)	0.001 (0.0024)
Observational Study	. (.)	0.036 (0.5322)	. (.)	0.024 (0.2554)	. (.)	-0.086 (0.5217)	. (.)	-0.154 (0.2280)
Randomized Controlled Trial	0.161 (0.0273)	0.126 (0.0170)	0.012 (0.0042)	0.010 (0.0029)	0.136 (0.0251)	0.096 (0.0201)	0.002 (0.0022)	0.002 (0.0018)
Technical Report	-0.125 (0.1568)	-0.183 (0.0862)	-0.122 (0.0581)	-0.100 (0.0443)	-0.099 (0.1308)	-0.135 (0.1488)	0.018 (0.0162)	-0.026 (0.0276)
Twin Study	-0.058 (0.0510)	-0.064 (0.0344)	0.012 (0.0151)	0.011 (0.0095)	-0.086 (0.0679)	-0.088 (0.0378)	-0.007 (0.0103)	0.002 (0.0060)
Validation Studies	-0.055 (0.0321)	-0.035 (0.0220)	-0.007 (0.0071)	-0.004 (0.0046)	-0.002 (0.0390)	0.015 (0.0328)	-0.002 (0.0039)	-0.001 (0.0026)
Clincial Trial	0.236 (0.0210)	0.181 (0.0242)	0.009 (0.0048)	0.004 (0.0027)	0.218 (0.0275)	0.158 (0.0211)	0.005 (0.0023)	0.005 (0.0018)
Irregular Article	-0.888 (0.1318)	-0.823 (0.1146)	-0.193 (0.0187)	-0.199 (0.0160)	-0.969 (0.1479)	-0.953 (0.1298)	-0.113 (0.0111)	-0.124 (0.0104)
Other Language	-0.875 (0.4317)	-0.344 (0.1523)	-0.173 (0.1302)	-0.146 (0.0998)	-0.740 (0.4432)	-0.220 (0.1585)	-0.023 (0.0782)	-0.044 (0.0632)
English	0.569 (0.5384)	1.117 (0.2431)	1.336 (0.2581)	1.387 (0.1545)	0.891 (0.5576)	1.495 (0.2527)	1.108 (0.2125)	1.054 (0.1350)
German	-1.044 (0.5290)	-0.043 (0.1887)	-0.054 (0.2216)	0.202 (0.1079)	-1.080 (0.5235)	-0.308 (0.1951)	0.082 (0.1374)	0.107 (0.0718)
French	-1.060 (0.5164)	-0.424 (0.1657)	0.017 (0.1373)	0.001 (0.0898)	-1.055 (0.5022)	-0.479 (0.1609)	-0.052 (0.0914)	-0.009 (0.0617)
Russion	-1.356 (0.5468)	-0.643 (0.2488)	-0.676 (0.3857)	-0.472 (0.2306)	-0.546 (0.4608)	-0.523 (0.2038)	-0.240 (0.1845)	-0.364 (0.1315)
Japanese	-1.014 (0.5203)	-0.551 (0.2209)	-0.070 (0.2619)	-0.118 (0.1949)	-1.241 (0.5223)	-0.513 (0.2149)	-0.143 (0.1737)	-0.053 (0.1263)
Spanish	-0.288 (0.8228)	0.169 (0.2484)	-0.148 (0.2194)	0.021 (0.1116)	-0.179 (0.8283)	0.200 (0.2527)	-0.046 (0.1175)	-0.033 (0.0646)
Italian	-0.852 (0.3581)	-0.596 (0.1884)	-0.465 (0.3189)	-0.233 (0.1468)	-0.884 (0.2438)	-0.530 (0.1617)	-0.203 (0.1229)	-0.048 (0.0762)
Chinese	-0.675 (0.5710)	-0.283 (0.2608)	-0.165 (0.3188)	-0.294 (0.2033)	-1.003 (0.5087)	-0.238 (0.1860)	-0.445 (0.1427)	-0.244 (0.1083)
Grant Count, Non-NIH	0.005 (0.0095)	-0.010 (0.0065)	-0.002 (0.0011)	-0.005 (0.0010)	0.001 (0.0082)	-0.008 (0.0072)	-0.001 (0.0006)	0.000 (0.0007)
Commercial Affiliation	0.126 (0.0253)	0.123 (0.0203)	0.017 (0.0059)	0.015 (0.0038)	0.126 (0.0262)	0.140 (0.0244)	0.011 (0.0032)	0.009 (0.0024)
Educational Affiliation	-0.072 (0.0207)	-0.057 (0.0133)	0.004 (0.0044)	0.008 (0.0028)	-0.063 (0.0210)	-0.055 (0.0124)	0.006 (0.0026)	0.008 (0.0019)
Educational/Hospital Affiliation	-0.042 (0.0199)	-0.029 (0.0144)	0.007 (0.0045)	0.010 (0.0029)	-0.031 (0.0207)	-0.023 (0.0135)	0.006 (0.0027)	0.008 (0.0020)
Government Affiliation	0.029 (0.0464)	0.053 (0.0303)	0.028 (0.0097)	0.025 (0.0062)	0.027 (0.0455)	0.042 (0.0305)	0.017 (0.0056)	0.015 (0.0041)
Hospital Affiliation	-0.025 (0.0209)	-0.017 (0.0139)	0.006 (0.0048)	0.009 (0.0031)	-0.018 (0.0224)	-0.018 (0.0128)	0.007 (0.0028)	0.008 (0.0021)
Military Affiliation	-0.007 (0.0580)	0.048 (0.0421)	0.009 (0.0167)	0.014 (0.0103)	0.001 (0.0602)	0.110 (0.0535)	0.011 (0.0074)	0.012 (0.0054)
Organization Affiliation	0.016 (0.0214)	0.030 (0.0179)	0.009 (0.0046)	0.014 (0.0029)	0.005 (0.0203)	0.021 (0.0144)	0.007 (0.0027)	0.009 (0.0020)

Notes –.

H Additional Results for Main Citation Outcomes

Table H.1.1. Count of 2-Year Cites (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[7.922]				[7.922]				[7.957]				[7.972]		
Poisson																
NIH × Post April 2008	-0.012	-0.015	-0.026	-0.023	0.009	-0.008	-0.022	-0.020	-0.047	-0.031	-0.044	-0.031	-0.029	-0.019	-0.028	-0.020
SE (Clustered)	(0.0122)	(0.0106)	(0.0088)***	(0.0086)***	(0.0131)	(0.0108)	(0.0088)**	(0.0085)**	(0.0113)***	(0.0118)***	(0.0086)***	(0.0087)***	(0.0128)**	(0.0128)	(0.0103)***	(0.0105)*
SE (EHW)	(0.0093)	(0.0093)	(0.0017)***	(0.0017)***	(0.0094)	(0.0095)	(0.0017)***	(0.0017)***	(0.0092)***	(0.0091)***	(0.0018)***	(0.0018)***	(0.0128)**	(0.0128)	(0.0024)***	(0.0024)***
%Δ	-1.2	-1.5	-2.6	-2.3	0.9	-0.8	-2.2	-2.0	-4.6	-3.0	-4.3	-3.1	-2.9	-1.9	-2.8	-2.0
%Δ (95% CI – Clustered)	[-3.5, 1.2]	[-3.5, 0.6]	[-4.2, -0.9]	[-3.9, -0.6]	[-1.6, 3.6]	[-2.9, 1.3]	[-3.9, -0.5]	[-3.6, -0.3]	[-6.6, -2.4]	[-5.3, -0.8]	[-5.9, -2.7]	[-4.7, -1.4]	[-5.3, -0.4]	[-4.3, 0.6]	[-4.7, -0.8]	[-4.0, 0.0]
%Δ (95% CI – EHW)	[-3.0, 0.6]	[-3.3, 0.3]	[-2.9, -2.3]	[-2.6, -2.0]	[-0.9, 2.8]	[-2.6, 1.1]	[-2.5, -1.9]	[-2.3, -1.6]	[-6.3, -2.8]	[-4.8, -1.3]	[-4.7, -4.0]	[-3.4, -2.7]	[-5.3, -0.4]	[-4.3, 0.6]	[-3.3, -2.4]	[-2.5, -1.5]
Observations	2,103,480		2,050,617		1,707,823		1,678,808		1,203,393		1,169,735		451,968		439,222	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.046	0.003	0.021	-0.021	0.104	0.021	-0.003	-0.036	-0.110	-0.121	-0.095	-0.094	-0.135	-0.123	-0.132	-0.120
SE (Clustered)	(0.0736)	(0.0650)	(0.0562)	(0.0523)	(0.0766)	(0.0661)	(0.0566)	(0.0526)	(0.0747)	(0.0657)*	(0.0565)*	(0.0518)*	(0.0883)	(0.0797)	(0.0715)*	(0.0671)*
SE (EHW)	(0.0611)	(0.0581)	(0.0550)	(0.0525)	(0.0624)*	(0.0593)	(0.0560)	(0.0534)	(0.0635)*	(0.0594)**	(0.0562)*	(0.0534)*	(0.0858)	(0.0810)	(0.0766)*	(0.0736)
%Δ	0.6	0.0	0.3	-0.3	1.3	0.3	-0.0	-0.5	-1.4	-1.5	-1.2	-1.2	-1.7	-1.5	-1.7	-1.5
%Δ (95% CI – Clustered)	[-1.2, 2.4]	[-1.6, 1.6]	[-1.1, 1.7]	[-1.6, 1.0]	[-0.6, 3.2]	[-1.4, 1.9]	[-1.4, 1.4]	[-1.8, 0.8]	[-3.2, 0.5]	[-3.1, 0.1]	[-2.6, 0.2]	[-2.5, 0.1]	[-3.9, 0.5]	[-3.5, 0.4]	[-3.4, 0.1]	[-3.2, 0.1]
%Δ (95% CI – EHW)	[-0.9, 2.1]	[-1.4, 1.5]	[-1.1, 1.6]	[-1.6, 1.0]	[-0.2, 2.9]	[-1.2, 1.7]	[-1.4, 1.4]	[-1.8, 0.9]	[-3.0, 0.2]	[-3.0, -0.1]	[-2.6, 0.2]	[-2.5, 0.1]	[-3.8, 0.4]	[-3.5, 0.4]	[-3.5, 0.2]	[-3.3, 0.3]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.023	-0.018	-0.015	-0.018	-0.003	-0.011	-0.015	-0.018	-0.050	-0.039	-0.033	-0.029	-0.022	-0.018	-0.010	-0.010
SE (Clustered)	(0.0090)**	(0.0066)***	(0.0055)***	(0.0048)***	(0.0107)	(0.0069)	(0.0057)***	(0.0050)***	(0.0081)***	(0.0063)***	(0.0054)***	(0.0047)***	(0.0088)**	(0.0071)**	(0.0061)*	(0.0054)*
SE (EHW)	(0.0051)***	(0.0045)***	(0.0042)***	(0.0038)***	(0.0052)	(0.0046)**	(0.0043)***	(0.0039)***	(0.0055)***	(0.0048)***	(0.0044)***	(0.0040)***	(0.0072)***	(0.0062)***	(0.0057)*	(0.0052)*
%Δ	-2.3	-1.7	-1.5	-1.8	-0.3	-1.1	-1.5	-1.7	-4.9	-3.8	-3.2	-2.9	-2.2	-1.8	-1.0	-1.0
%Δ (95% CI – Clustered)	[-4.0, -0.5]	[-3.0, -0.5]	[-2.5, -0.4]	[-2.7, -0.9]	[-2.3, 1.8]	[-2.4, 0.2]	[-2.6, -0.4]	[-2.7, -0.8]	[-6.4, -3.4]	[-5.0, -2.6]	[-4.2, -2.2]	[-3.7, -2.0]	[-3.9, -0.5]	[-3.1, -0.4]	[-2.2, 0.2]	[-2.0, 0.1]
%Δ (95% CI – EHW)	[-3.3, -1.3]	[-2.6, -0.9]	[-2.3, -0.6]	[-2.5, -1.1]	[-1.3, 0.8]	[-2.0, -0.2]	[-2.3, -0.7]	[-2.5, -1.0]	[-5.9, -3.9]	[-4.7, -2.9]	[-4.1, -2.4]	[-3.6, -2.1]	[-3.6, -0.8]	[-3.0, -0.6]	[-2.1, 0.1]	[-2.0, 0.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[7.763]				[7.763]				[7.783]				[7.807]		
Poisson																
NIH × Post April 2008	-0.022	-0.020	-0.056	-0.055	0.022	-0.001	-0.046	-0.048	-0.053	-0.043	-0.084	-0.064	0.029	0.012	-0.016	-0.020
SE (Clustered)	(0.0228)	(0.0191)	(0.0122)***	(0.0083)***	(0.0224)	(0.0191)	(0.0123)***	(0.0083)***	(0.0218)**	(0.0194)**	(0.0098)***	(0.0080)***	(0.0223)	(0.0208)	(0.0085)*	(0.0083)**
SE (EHW)	(0.0051)***	(0.0056)***	(0.0010)***	(0.0010)***	(0.0051)***	(0.0056)	(0.0010)***	(0.0010)***	(0.0054)***	(0.0060)***	(0.0011)***	(0.0011)***	(0.0073)***	(0.0078)	(0.0014)***	(0.0014)***
%Δ	-2.1	-2.0	-5.4	-5.4	2.2	-0.1	-4.5	-4.7	-5.1	-4.2	-8.1	-6.2	3.0	1.2	-1.6	-2.0
%Δ (95% CI – Clustered)	[-6.4, 2.3]	[-5.6, 1.8]	[-7.7, -3.1]	[-6.9, -3.8]	[-2.2, 6.8]	[-3.8, 3.7]	[-6.7, -2.1]	[-6.2, -3.1]	[-9.1, -1.0]	[-7.8, -0.5]	[-9.8, -6.3]	[-7.7, -4.8]	[-1.4, 7.6]	[-2.8, 5.4]	[-3.3, 0.0]	[-3.5, -0.4]
%Δ (95% CI – EHW)	[-3.1, -1.2]	[-3.1, -0.9]	[-5.6, -5.2]	[-5.6, -5.2]	[1.2, 3.3]	[-1.2, 1.0]	[-4.6, -4.3]	[-4.9, -4.5]	[-6.1, -4.1]	[-5.3, -3.1]	[-8.3, -7.9]	[-6.4, -6.0]	[1.5, 4.5]	[-0.3, 2.8]	[-1.9, -1.4]	[-2.2, -1.7]
Observations	6,108,951		6,008,520		4,918,431		4,863,593		3,067,679		3,012,532		1,288,882		1,265,291	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.033	-0.104	-0.044	-0.103	0.102	-0.042	-0.079	-0.124	-0.182	-0.177	-0.281	-0.218	0.189	0.045	-0.059	-0.098
SE (Clustered)	(0.1395)	(0.1158)	(0.0923)	(0.0758)	(0.1416)	(0.1175)	(0.0916)	(0.0756)*	(0.1420)	(0.1146)	(0.0717)***	(0.0614)***	(0.1587)	(0.1295)	(0.0597)	(0.0559)*
SE (EHW)	(0.0354)	(0.0337)***	(0.0323)	(0.0310)***	(0.0358)***	(0.0340)	(0.0327)**	(0.0312)***	(0.0375)***	(0.0350)***	(0.0334)***	(0.0318)***	(0.0490)***	(0.0463)	(0.0441)	(0.0423)**
%Δ	-0.4	-1.3	-0.6	-1.3	1.3	-0.5	-1.0	-1.6	-2.3	-2.3	-3.6	-2.8	2.4	0.6	-0.8	-1.3
%Δ (95% CI – Clustered)	[-3.9, 3.1]	[-4.3, 1.6]	[-2.9, 1.8]	[-3.2, 0.6]	[-2.3, 4.9]	[-3.5, 2.4]	[-3.3, 1.3]	[-3.5, 0.3]	[-5.9, 1.2]	[-5.2, 0.6]	[-5.4, -1.8]	[-4.3, -1.3]	[-1.6, 6.4]	[-2.7, 3.8]	[-2.3, 0.7]	[-2.7, 0.1]
%Δ (95% CI – EHW)	[-1.3, 0.5]	[-2.2, -0.5]	[-1.4, 0.3]	[-2.1, -0.5]	[0.4, 2.2]	[-1.4, 0.3]	[-1.8, -0.2]	[-2.4, -0.8]	[-3.3, -1.4]	[-3.2, -1.4]	[-4.5, -2.8]	[-3.6, -2.0]	[1.2, 3.7]	[-0.6, 1.7]	[-1.9, 0.4]	[-2.3, -0.2]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.092	-0.068	-0.062	-0.062	-0.048	-0.051	-0.060	-0.059	-0.120	-0.083	-0.098	-0.078	-0.018	-0.027	-0.030	-0.034
SE (Clustered)	(0.0136)***	(0.0092)***	(0.0074)***	(0.0056)***	(0.0143)***	(0.0092)***	(0.0076)***	(0.0057)***	(0.0121)***	(0.0082)***	(0.0059)***	(0.0046)***	(0.0116)	(0.0079)***	(0.0053)***	(0.0044)***
SE (EHW)	(0.0030)***	(0.0027)***	(0.0025)***	(0.0023)***	(0.0030)***	(0.0027)***	(0.0025)***	(0.0023)***	(0.0033)***	(0.0028)***	(0.0026)***	(0.0024)***	(0.0042)***	(0.0036)***	(0.0034)***	(0.0031)***
%Δ	-8.8	-6.6	-6.0	-6.0	-4.7	-5.0	-5.9	-5.7	-11.3	-7.9	-9.3	-7.5	-1.8	-2.7	-2.9	-3.3
%Δ (95% CI – Clustered)	[-11.2, -6.3]	[-8.3, -4.9]	[-7.3, -4.6]	[-7.0, -4.9]	[-7.3, -2.0]	[-6.7, -3.2]	[-7.3, -4.5]	[-6.8, -4.7]	[-13.4, -9.2]	[-9.4, -6.4]	[-10.4, -8.3]	[-8.4, -6.7]	[-4.0, 0.5]	[-4.2, -1.2]	[-3.9, -1.9]	[-4.1, -2.5]
%Δ (95% CI – EHW)	[-9.4, -8.3]	[-7.1, -6.1]	[-6.5, -5.5]	[-6.4, -5.5]	[-5.2, -4.1]	[-5.5, -4.4]	[-6.3, -5.4]	[-6.2, -5.3]	[-11.9, -10.7]	[-8.4, -7.4]	[-9.8, -8.9]	[-8.0, -7.1]	[-2.6, -1.0]	[-3.4, -2.0]	[-3.6, -2.3]	[-3.9, -2.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.1.2. Count of Lifetime Cites (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[30.836]				[30.836]				[30.970]				[31.040]		
Poisson																
NIH × Post April 2008	0.008	0.007	-0.007	-0.004	0.027	0.013	-0.006	-0.003	-0.026	-0.010	-0.028	-0.015	-0.023	-0.013	-0.025	-0.017
SE (Clustered)	(0.0127)	(0.0111)	(0.0094)	(0.0091)	(0.0137)**	(0.0114)	(0.0094)	(0.0090)	(0.0122)**	(0.0122)	(0.0096)***	(0.0093)	(0.0136)*	(0.0136)	(0.0115)**	(0.0114)
SE (EHW)	(0.0099)	(0.0099)	(0.0009)***	(0.0009)***	(0.0100)***	(0.0100)	(0.0009)***	(0.0009)***	(0.0101)***	(0.0100)	(0.0010)***	(0.0010)***	(0.0132)*	(0.0133)	(0.0013)***	(0.0013)***
%Δ	0.8	0.7	-0.7	-0.4	2.8	1.3	-0.6	-0.3	-2.6	-1.0	-2.8	-1.5	-2.3	-1.3	-2.4	-1.7
%Δ (95% CI – Clustered)	[-1.7, 3.3]	[-1.5, 2.9]	[-2.5, 1.1]	[-2.2, 1.4]	[0.0, 5.6]	[-1.0, 3.5]	[-2.4, 1.3]	[-2.1, 1.5]	[-4.9, -0.2]	[-3.3, 1.4]	[-4.6, -0.9]	[-3.3, 0.3]	[-4.9, 0.4]	[-3.9, 1.4]	[-4.6, -0.2]	[-3.8, 0.6]
%Δ (95% CI – EHW)	[-1.2, 2.7]	[-1.2, 2.7]	[-0.9, -0.6]	[-0.6, -0.3]	[0.8, 4.8]	[-0.7, 3.3]	[-0.7, -0.4]	[-0.5, -0.1]	[-4.5, -0.6]	[-2.9, 1.0]	[-3.0, -2.6]	[-1.7, -1.3]	[-4.8, 0.3]	[-3.8, 1.3]	[-2.7, -2.2]	[-1.9, -1.4]
Observations	2,103,480		2,069,326		1,707,823		1,689,386		1,203,393		1,180,667		451,968		441,757	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-4.742	-4.825	-4.787	-4.877	-3.897	-4.118	-4.127	-4.195	-4.291	-4.263	-4.227	-4.175	-2.627	-2.558	-2.609	-2.546
SE (Clustered)	(0.4244)***	(0.4168)***	(0.4242)***	(0.4222)***	(0.4212)***	(0.4067)***	(0.4196)***	(0.4129)***	(0.4215)***	(0.4064)***	(0.4137)***	(0.3950)***	(0.4255)***	(0.3953)***	(0.4305)***	(0.3978)***
SE (EHW)	(0.2552)***	(0.2467)***	(0.2393)***	(0.2318)***	(0.2582)***	(0.2494)***	(0.2415)***	(0.2337)***	(0.2648)***	(0.2536)***	(0.2459)***	(0.2376)***	(0.3288)***	(0.3140)***	(0.3088)***	(0.2991)***
%Δ	-15.4	-15.6	-15.5	-15.8	-12.6	-13.4	-13.4	-13.6	-13.9	-13.8	-13.6	-13.5	-8.5	-8.2	-8.4	-8.2
%Δ (95% CI – Clustered)	[-18.1, -12.7]	[-18.3, -13.0]	[-18.2, -12.8]	[-18.5, -13.1]	[-15.3, -10.0]	[-15.9, -10.8]	[-16.1, -10.7]	[-16.2, -11.0]	[-16.5, -11.2]	[-16.3, -11.2]	[-16.3, -11.0]	[-16.0, -11.0]	[-11.2, -5.8]	[-10.7, -5.7]	[-11.1, -5.7]	[-10.7, -5.7]
%Δ (95% CI – EHW)	[-17.0, -13.8]	[-17.2, -14.1]	[-17.0, -14.0]	[-17.3, -14.3]	[-14.3, -11.0]	[-14.9, -11.8]	[-14.9, -11.8]	[-15.1, -12.1]	[-15.5, -12.2]	[-15.4, -12.2]	[-15.2, -12.1]	[-15.0, -12.0]	[-10.5, -6.4]	[-10.2, -6.3]	[-10.4, -6.5]	[-10.1, -6.3]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.069	-0.054	-0.055	-0.058	-0.009	-0.016	-0.025	-0.027	-0.082	-0.060	-0.059	-0.051	-0.031	-0.024	-0.018	-0.017
SE (Clustered)	(0.0121)***	(0.0082)***	(0.0067)***	(0.0057)***	(0.0153)	(0.0087)*	(0.0068)***	(0.0057)***	(0.0098)***	(0.0073)***	(0.0064)***	(0.0053)***	(0.0103)***	(0.0079)***	(0.0067)***	(0.0058)***
SE (EHW)	(0.0059)***	(0.0050)***	(0.0046)***	(0.0040)***	(0.0059)	(0.0051)***	(0.0047)***	(0.0041)***	(0.0063)***	(0.0053)***	(0.0048)***	(0.0042)***	(0.0082)***	(0.0068)***	(0.0061)***	(0.0055)***
%Δ	-6.7	-5.3	-5.3	-5.6	-0.9	-1.6	-2.5	-2.6	-7.9	-5.8	-5.7	-5.0	-3.1	-2.3	-1.8	-1.7
%Δ (95% CI – Clustered)	[-8.9, -4.5]	[-6.8, -3.8]	[-6.6, -4.1]	[-6.7, -4.6]	[-3.8, 2.2]	[-3.3, 0.1]	[-3.8, -1.2]	[-3.7, -1.5]	[-9.6, -6.1]	[-7.1, -4.4]	[-6.9, -4.5]	[-6.0, -4.0]	[-5.0, -1.1]	[-3.8, -0.8]	[-3.1, -0.5]	[-2.8, -0.5]
%Δ (95% CI – EHW)	[-7.8, -5.6]	[-6.2, -4.3]	[-6.2, -4.5]	[-6.4, -4.9]	[-2.0, 0.3]	[-2.6, -0.6]	[-3.4, -1.6]	[-3.4, -1.8]	[-9.0, -6.7]	[-6.8, -4.8]	[-6.6, -4.8]	[-5.8, -4.2]	[-4.6, -1.5]	[-3.6, -1.0]	[-2.9, -0.6]	[-2.7, -0.6]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[37.729]				[37.729]				[37.812]				[37.930]		
Poisson																
NIH × Post April 2008	0.026	0.031	-0.014	-0.011	0.066	0.045	-0.008	-0.009	0.005	0.002	-0.046	-0.034	0.033	0.014	-0.017	-0.021
SE (Clustered)	(0.0233)	(0.0200)	(0.0134)	(0.0084)	(0.0231)***	(0.0201)**	(0.0135)	(0.0084)	(0.0232)	(0.0206)	(0.0118)***	(0.0081)***	(0.0239)	(0.0225)	(0.0095)*	(0.0088)**
SE (EHW)	(0.0053)***	(0.0057)***	(0.0006)***	(0.0006)***	(0.0054)***	(0.0057)***	(0.0006)***	(0.0006)***	(0.0058)	(0.0065)	(0.0006)***	(0.0006)***	(0.0075)***	(0.0082)*	(0.0008)***	(0.0008)***
%Δ	2.7	3.2	-1.4	-1.1	6.8	4.6	-0.8	-0.8	0.5	0.2	-4.5	-3.3	3.3	1.4	-1.7	-2.1
%Δ (95% CI – Clustered)	[-1.9, 7.5]	[-0.8, 7.3]	[-4.0, 1.2]	[-2.7, 0.5]	[2.1, 11.8]	[0.6, 8.8]	[-3.4, 1.8]	[-2.5, 0.8]	[-4.0, 5.2]	[-3.8, 4.3]	[-6.6, -2.2]	[-4.9, -1.8]	[-1.4, 8.3]	[-3.0, 6.0]	[-3.5, 0.1]	[-3.7, -0.4]
%Δ (95% CI – EHW)	[1.6, 3.7]	[2.0, 4.3]	[-1.5, -1.3]	[-1.2, -1.0]	[5.7, 7.9]	[3.4, 5.8]	[-1.0, -0.7]	[-1.0, -0.7]	[-0.6, 1.7]	[-1.1, 1.4]	[-4.6, -4.4]	[-3.4, -3.2]	[1.8, 4.9]	[-0.2, 3.1]	[-1.8, -1.5]	[-2.2, -1.9]
Observations	6,108,951		6,051,701		4,918,431		4,888,986		3,067,679		3,034,706		1,288,882		1,271,771	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-12.465	-12.276	-11.989	-11.828	-10.193	-10.364	-10.358	-10.223	-9.405	-9.059	-9.368	-8.880	-4.712	-5.093	-5.245	-5.289
SE (Clustered)	(0.8466)***	(0.8205)***	(0.8392)***	(0.8102)***	(0.8110)***	(0.7810)***	(0.8133)***	(0.7818)***	(0.7542)***	(0.7201)***	(0.7362)***	(0.6793)***	(0.7103)***	(0.6699)***	(0.6188)***	(0.5843)***
SE (EHW)	(0.1383)***	(0.1339)***	(0.1309)***	(0.1268)***	(0.1398)***	(0.1350)***	(0.1322)***	(0.1278)***	(0.1462)***	(0.1402)***	(0.1360)***	(0.1313)***	(0.1834)***	(0.1752)***	(0.1703)***	(0.1648)***
%Δ	-33.0	-32.5	-31.8	-31.4	-27.0	-27.5	-27.5	-27.1	-24.9	-24.0	-24.8	-23.5	-12.4	-13.4	-13.8	-13.9
%Δ (95% CI – Clustered)	[-37.4, -28.6]	[-36.8, -28.3]	[-36.1, -27.4]	[-35.6, -27.1]	[-31.2, -22.8]	[-31.5, -23.4]	[-31.7, -23.2]	[-31.2, -23.0]	[-28.8, -21.0]	[-27.7, -20.2]	[-28.6, -21.0]	[-27.0, -20.0]	[-16.1, -8.8]	[-16.9, -10.0]	[-17.0, -10.6]	[-17.0, -10.9]
%Δ (95% CI – EHW)	[-33.8, -32.3]	[-33.2, -31.8]	[-32.5, -31.1]	[-32.0, -30.7]	[-27.7, -26.3]	[-28.2, -26.8]	[-28.1, -26.8]	[-27.8, -26.4]	[-25.6, -24.1]	[-24.7, -23.2]	[-25.5, -24.1]	[-24.2, -22.8]	[-13.4, -11.5]	[-14.3, -12.5]	[-14.7, -12.9]	[-14.8, -13.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.251	-0.189	-0.185	-0.175	-0.110	-0.097	-0.111	-0.102	-0.210	-0.141	-0.164	-0.132	-0.045	-0.048	-0.050	-0.052
SE (Clustered)	(0.0184)***	(0.0118)***	(0.0107)***	(0.0088)***	(0.0190)***	(0.0113)***	(0.0108)***	(0.0084)***	(0.0154)***	(0.0097)***	(0.0086)***	(0.0066)***	(0.0137)***	(0.0089)***	(0.0068)***	(0.0055)***
SE (EHW)	(0.0034)***	(0.0030)***	(0.0027)***	(0.0024)***	(0.0034)***	(0.0030)***	(0.0028)***	(0.0025)***	(0.0037)***	(0.0031)***	(0.0029)***	(0.0026)***	(0.0047)***	(0.0040)***	(0.0036)***	(0.0032)***
%Δ	-22.2	-17.2	-16.9	-16.0	-10.4	-9.2	-10.5	-9.7	-19.0	-13.1	-15.1	-12.3	-4.4	-4.7	-4.8	-5.1
%Δ (95% CI – Clustered)	[-24.9, -19.3]	[-19.1, -15.3]	[-18.6, -15.1]	[-17.5, -14.6]	[-13.7, -7.0]	[-11.2, -7.2]	[-12.4, -8.6]	[-11.2, -8.2]	[-21.4, -16.5]	[-14.8, -11.4]	[-16.6, -13.7]	[-13.5, -11.2]	[-7.0, -1.8]	[-6.4, -3.0]	[-6.1, -3.6]	[-6.1, -4.0]
%Δ (95% CI – EHW)	[-22.7, -21.7]	[-17.7, -16.7]	[-17.3, -16.4]	[-16.4, -15.6]	[-11.0, -9.8]	[-9.8, -8.7]	[-11.0, -10.0]	[-10.2, -9.3]	[-19.6, -18.4]	[-13.6, -12.6]	[-15.6, -14.7]	[-12.8, -11.9]	[-5.3, -3.5]	[-5.5, -4.0]	[-5.5, -4.2]	[-5.7, -4.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations – i.e. the number of citations an article ever receives. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.1.3. Dummy for Positive 2-Year Cites (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.875]				[0.875]				[0.875]				[0.876]		
Poisson																
NIH × Post April 2008	-0.020	-0.010	-0.016	-0.014	-0.002	-0.003	-0.009	-0.008	-0.026	-0.016	-0.017	-0.015	-0.004	-0.002	-0.001	-0.001
SE (Clustered)	(0.0046)***	(0.0034)***	(0.0025)***	(0.0025)***	(0.0053)	(0.0035)	(0.0024)***	(0.0023)***	(0.0033)***	(0.0027)***	(0.0022)***	(0.0020)***	(0.0032)	(0.0027)	(0.0022)	(0.0022)
SE (EHW)	(0.0020)***	(0.0020)***	(0.0048)***	(0.0048)***	(0.0019)	(0.0019)	(0.0048)*	(0.0048)	(0.0021)***	(0.0020)***	(0.0051)***	(0.0051)***	(0.0026)*	(0.0024)	(0.0066)	(0.0066)
%Δ	-2.0	-1.0	-1.6	-1.4	-0.2	-0.3	-0.9	-0.8	-2.6	-1.6	-1.7	-1.4	-0.4	-0.2	-0.1	-0.1
%Δ (95% CI – Clustered)	[-2.8, -1.1]	[-1.7, -0.4]	[-2.0, -1.1]	[-1.9, -1.0]	[-1.3, 0.8]	[-1.0, 0.4]	[-1.3, -0.4]	[-1.2, -0.3]	[-3.2, -1.9]	[-2.1, -1.1]	[-2.1, -1.3]	[-1.8, -1.1]	[-1.1, 0.2]	[-0.7, 0.3]	[-0.5, 0.4]	[-0.5, 0.3]
%Δ (95% CI – EHW)	[-2.3, -1.6]	[-1.4, -0.6]	[-2.5, -0.6]	[-2.4, -0.5]	[-0.6, 0.1]	[-0.7, 0.1]	[-1.8, 0.1]	[-1.7, 0.2]	[-3.0, -2.2]	[-2.0, -1.2]	[-2.7, -0.7]	[-2.4, -0.5]	[-0.9, 0.1]	[-0.7, 0.3]	[-1.4, 1.3]	[-1.4, 1.2]
Observations	2,103,480		2,050,617		1,707,823		1,678,808		1,203,393		1,169,735		451,968		439,222	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.013	-0.007	-0.009	-0.009	-0.002	-0.003	-0.006	-0.006	-0.019	-0.013	-0.012	-0.010	-0.004	-0.002	-0.000	-0.001
SE (Clustered)	(0.0030)***	(0.0022)***	(0.0018)***	(0.0017)***	(0.0038)	(0.0024)	(0.0018)***	(0.0017)***	(0.0025)***	(0.0020)***	(0.0017)***	(0.0016)***	(0.0026)	(0.0022)	(0.0019)	(0.0018)
SE (EHW)	(0.0015)***	(0.0014)***	(0.0013)***	(0.0012)***	(0.0016)	(0.0015)**	(0.0013)***	(0.0013)***	(0.0017)***	(0.0015)***	(0.0014)***	(0.0013)***	(0.0022)*	(0.0020)	(0.0018)	(0.0017)
%Δ	-1.5	-0.8	-1.0	-1.0	-0.3	-0.3	-0.7	-0.7	-2.2	-1.4	-1.4	-1.2	-0.4	-0.3	-0.1	-0.1
%Δ (95% CI – Clustered)	[-2.2, -0.8]	[-1.3, -0.3]	[-1.4, -0.6]	[-1.4, -0.7]	[-1.1, 0.6]	[-0.9, 0.2]	[-1.1, -0.3]	[-1.1, -0.3]	[-2.7, -1.6]	[-1.9, -1.0]	[-1.7, -1.0]	[-1.5, -0.8]	[-1.0, 0.2]	[-0.8, 0.2]	[-0.5, 0.4]	[-0.5, 0.3]
%Δ (95% CI – EHW)	[-1.8, -1.1]	[-1.2, -0.5]	[-1.3, -0.7]	[-1.3, -0.8]	[-0.6, 0.1]	[-0.7, -0.0]	[-1.0, -0.4]	[-1.0, -0.4]	[-2.5, -1.8]	[-1.8, -1.1]	[-1.7, -1.1]	[-1.5, -0.9]	[-0.9, 0.1]	[-0.7, 0.2]	[-0.4, 0.3]	[-0.5, 0.3]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.011	-0.006	-0.008	-0.008	-0.002	-0.003	-0.005	-0.005	-0.017	-0.011	-0.011	-0.009	-0.003	-0.002	-0.000	-0.001
SE (Clustered)	(0.0027)***	(0.0020)***	(0.0016)***	(0.0015)***	(0.0034)	(0.0022)	(0.0016)***	(0.0015)***	(0.0022)***	(0.0017)***	(0.0015)***	(0.0014)***	(0.0023)	(0.0020)	(0.0016)	(0.0016)
SE (EHW)	(0.0014)***	(0.0013)***	(0.0011)***	(0.0011)***	(0.0014)	(0.0013)**	(0.0012)***	(0.0011)***	(0.0015)***	(0.0014)***	(0.0012)***	(0.0012)***	(0.0019)*	(0.0017)	(0.0016)	(0.0015)
%Δ	-1.1	-0.6	-0.8	-0.8	-0.2	-0.3	-0.5	-0.5	-1.6	-1.1	-1.0	-0.9	-0.3	-0.2	-0.0	-0.1
%Δ (95% CI – Clustered)	[-1.7, -0.6]	[-1.0, -0.3]	[-1.1, -0.5]	[-1.1, -0.5]	[-0.9, 0.4]	[-0.7, 0.2]	[-0.9, -0.2]	[-0.8, -0.2]	[-2.1, -1.2]	[-1.4, -0.8]	[-1.3, -0.8]	[-1.2, -0.6]	[-0.8, 0.1]	[-0.6, 0.2]	[-0.4, 0.3]	[-0.4, 0.2]
%Δ (95% CI – EHW)	[-1.4, -0.9]	[-0.9, -0.4]	[-1.0, -0.6]	[-1.0, -0.6]	[-0.5, 0.1]	[-0.5, -0.0]	[-0.8, -0.3]	[-0.8, -0.3]	[-1.9, -1.4]	[-1.4, -0.8]	[-1.3, -0.8]	[-1.1, -0.7]	[-0.7, 0.0]	[-0.5, 0.1]	[-0.3, 0.3]	[-0.4, 0.2]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.879]				[0.879]				[0.879]				[0.880]		
Poisson																
NIH × Post April 2008	-0.060	-0.029	-0.044	-0.037	-0.022	-0.015	-0.028	-0.024	-0.055	-0.030	-0.041	-0.032	-0.009	-0.008	-0.009	-0.010
SE (Clustered)	(0.0067)***	(0.0039)***	(0.0031)***	(0.0026)***	(0.0064)***	(0.0039)***	(0.0031)***	(0.0025)***	(0.0047)***	(0.0028)***	(0.0024)***	(0.0019)***	(0.0035)***	(0.0022)***	(0.0018)***	(0.0016)***
SE (EHW)	(0.0012)***	(0.0012)***	(0.0028)***	(0.0028)***	(0.0011)***	(0.0011)***	(0.0028)***	(0.0028)***	(0.0012)***	(0.0013)***	(0.0030)***	(0.0030)***	(0.0015)***	(0.0014)***	(0.0039)**	(0.0039)***
%Δ	-5.8	-2.9	-4.3	-3.6	-2.2	-1.5	-2.7	-2.3	-5.4	-3.0	-4.1	-3.1	-0.9	-0.8	-0.9	-1.0
%Δ (95% CI – Clustered)	[-7.1, -4.6]	[-3.6, -2.1]	[-4.9, -3.7]	[-4.1, -3.1]	[-3.4, -0.9]	[-2.2, -0.7]	[-3.3, -2.1]	[-2.8, -1.9]	[-6.3, -4.5]	[-3.5, -2.4]	[-4.5, -3.6]	[-3.5, -2.8]	[-1.6, -0.3]	[-1.2, -0.4]	[-1.3, -0.6]	[-1.3, -0.7]
%Δ (95% CI – EHW)	[-6.1, -5.6]	[-3.1, -2.7]	[-4.8, -3.8]	[-4.2, -3.1]	[-2.4, -2.0]	[-1.7, -1.3]	[-3.3, -2.2]	[-2.9, -1.8]	[-5.6, -5.2]	[-3.2, -2.7]	[-4.6, -3.5]	[-3.7, -2.6]	[-1.2, -0.6]	[-1.1, -0.5]	[-1.7, -0.2]	[-1.8, -0.3]
Observations	6,108,951		6,008,520		4,918,431		4,863,593		3,067,679		3,012,532		1,288,882		1,265,291	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.040	-0.021	-0.025	-0.022	-0.018	-0.012	-0.019	-0.017	-0.042	-0.023	-0.030	-0.023	-0.009	-0.008	-0.008	-0.008
SE (Clustered)	(0.0041)***	(0.0025)***	(0.0022)***	(0.0017)***	(0.0045)***	(0.0027)***	(0.0023)***	(0.0017)***	(0.0033)***	(0.0020)***	(0.0018)***	(0.0014)***	(0.0028)***	(0.0018)***	(0.0015)***	(0.0013)***
SE (EHW)	(0.0009)***	(0.0008)***	(0.0008)***	(0.0007)***	(0.0009)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0010)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0013)***	(0.0012)***	(0.0010)***	(0.0010)***
%Δ	-4.6	-2.4	-2.9	-2.5	-2.1	-1.4	-2.2	-1.9	-4.8	-2.6	-3.4	-2.6	-1.0	-0.9	-0.9	-1.0
%Δ (95% CI – Clustered)	[-5.5, -3.6]	[-2.9, -1.8]	[-3.4, -2.4]	[-2.9, -2.2]	[-3.1, -1.1]	[-2.0, -0.8]	[-2.7, -1.7]	[-2.3, -1.5]	[-5.5, -4.0]	[-3.1, -2.2]	[-3.8, -3.0]	[-2.9, -2.3]	[-1.6, -0.4]	[-1.3, -0.5]	[-1.2, -0.5]	[-1.3, -0.7]
%Δ (95% CI – EHW)	[-4.8, -4.4]	[-2.6, -2.2]	[-3.0, -2.7]	[-2.7, -2.4]	[-2.3, -1.8]	[-1.6, -1.2]	[-2.4, -2.0]	[-2.1, -1.8]	[-5.0, -4.6]	[-2.8, -2.4]	[-3.6, -3.2]	[-2.8, -2.4]	[-1.3, -0.7]	[-1.1, -0.6]	[-1.1, -0.6]	[-1.2, -0.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.035	-0.018	-0.022	-0.020	-0.016	-0.011	-0.017	-0.015	-0.037	-0.020	-0.026	-0.020	-0.008	-0.007	-0.007	-0.007
SE (Clustered)	(0.0036)***	(0.0022)***	(0.0019)***	(0.0015)***	(0.0040)***	(0.0024)***	(0.0020)***	(0.0015)***	(0.0029)***	(0.0018)***	(0.0016)***	(0.0013)***	(0.0025)***	(0.0016)***	(0.0013)***	(0.0012)***
SE (EHW)	(0.0008)***	(0.0007)***	(0.0007)***	(0.0006)***	(0.0008)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0009)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0011)***	(0.0010)***	(0.0009)***	(0.0009)***
%Δ	-3.5	-1.8	-2.2	-1.9	-1.6	-1.1	-1.7	-1.5	-3.6	-2.0	-2.6	-2.0	-0.8	-0.7	-0.7	-0.7
%Δ (95% CI – Clustered)	[-4.1, -2.8]	[-2.3, -1.4]	[-2.6, -1.8]	[-2.2, -1.7]	[-2.3, -0.8]	[-1.5, -0.6]	[-2.1, -1.3]	[-1.8, -1.2]	[-4.2, -3.1]	[-2.4, -1.7]	[-2.9, -2.3]	[-2.3, -1.8]	[-1.2, -0.3]	[-1.0, -0.4]	[-0.9, -0.4]	[-1.0, -0.5]
%Δ (95% CI – EHW)	[-3.6, -3.3]	[-2.0, -1.7]	[-2.3, -2.1]	[-2.1, -1.8]	[-1.7, -1.4]	[-1.2, -0.9]	[-1.8, -1.6]	[-1.6, -1.3]	[-3.8, -3.5]	[-2.2, -1.9]	[-2.7, -2.5]	[-2.1, -1.9]	[-1.0, -0.5]	[-0.9, -0.5]	[-0.8, -0.5]	[-0.9, -0.6]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.1.4. Dummy for Lifetime Cites (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.943]				[0.943]				[0.942]				[0.943]		
Poisson																
NIH × Post April 2008	0.019	0.028	0.024	0.024	0.025	0.025	0.020	0.020	0.005	0.012	0.011	0.012	0.001	0.003	0.003	0.002
SE (Clustered)	(0.0038)***	(0.0028)***	(0.0019)***	(0.0019)***	(0.0046)***	(0.0032)***	(0.0018)***	(0.0017)***	(0.0024)**	(0.0020)***	(0.0015)***	(0.0014)***	(0.0021)	(0.0019)	(0.0013)**	(0.0013)*
SE (EHW)	(0.0013)***	(0.0013)***	(0.0046)***	(0.0046)***	(0.0013)***	(0.0012)***	(0.0046)***	(0.0046)***	(0.0014)***	(0.0013)***	(0.0049)**	(0.0049)**	(0.0017)	(0.0016)*	(0.0064)	(0.0064)
%Δ	2.0	2.8	2.4	2.4	2.6	2.6	2.0	2.0	0.5	1.2	1.1	1.2	0.1	0.3	0.3	0.2
%Δ (95% CI – Clustered)	[1.2, 2.7]	[2.2, 3.4]	[2.0, 2.8]	[2.1, 2.8]	[1.7, 3.5]	[1.9, 3.2]	[1.6, 2.3]	[1.7, 2.3]	[0.0, 1.0]	[0.8, 1.6]	[0.8, 1.4]	[0.9, 1.5]	[-0.3, 0.5]	[-0.1, 0.6]	[0.0, 0.5]	[-0.0, 0.5]
%Δ (95% CI – EHW)	[1.7, 2.2]	[2.5, 3.1]	[1.5, 3.3]	[1.5, 3.4]	[2.3, 2.8]	[2.3, 2.8]	[1.1, 2.9]	[1.1, 2.9]	[0.2, 0.8]	[0.9, 1.5]	[0.1, 2.0]	[0.3, 2.2]	[-0.2, 0.5]	[-0.0, 0.6]	[-1.0, 1.5]	[-1.0, 1.5]
Observations	2,103,480		2,069,326		1,707,823		1,689,386		1,203,393		1,180,667		451,968		441,757	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.013	0.019	0.017	0.017	0.020	0.020	0.016	0.016	0.003	0.009	0.008	0.009	0.001	0.002	0.002	0.002
SE (Clustered)	(0.0030)***	(0.0022)***	(0.0016)***	(0.0015)***	(0.0038)***	(0.0026)***	(0.0015)***	(0.0014)***	(0.0021)	(0.0017)***	(0.0013)***	(0.0013)***	(0.0020)	(0.0017)	(0.0012)**	(0.0012)
SE (EHW)	(0.0012)***	(0.0011)***	(0.0008)***	(0.0008)***	(0.0012)***	(0.0011)***	(0.0008)***	(0.0008)***	(0.0013)**	(0.0012)***	(0.0009)***	(0.0008)***	(0.0016)	(0.0014)	(0.0010)**	(0.0010)*
%Δ	1.4	2.0	1.8	1.8	2.1	2.1	1.7	1.7	0.3	0.9	0.9	1.0	0.1	0.2	0.3	0.2
%Δ (95% CI – Clustered)	[0.7, 2.0]	[1.6, 2.5]	[1.5, 2.2]	[1.5, 2.1]	[1.3, 2.9]	[1.6, 2.7]	[1.4, 2.0]	[1.4, 2.0]	[-0.1, 0.8]	[0.6, 1.3]	[0.6, 1.1]	[0.7, 1.2]	[-0.3, 0.5]	[-0.1, 0.6]	[0.0, 0.5]	[-0.1, 0.4]
%Δ (95% CI – EHW)	[1.1, 1.6]	[1.8, 2.3]	[1.7, 2.0]	[1.6, 1.9]	[1.9, 2.4]	[1.9, 2.4]	[1.5, 1.9]	[1.5, 1.8]	[0.1, 0.6]	[0.7, 1.2]	[0.7, 1.0]	[0.8, 1.2]	[-0.2, 0.4]	[-0.1, 0.5]	[0.0, 0.5]	[-0.0, 0.4]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	0.011	0.017	0.015	0.015	0.018	0.018	0.014	0.014	0.003	0.008	0.007	0.008	0.001	0.002	0.002	0.002
SE (Clustered)	(0.0026)***	(0.0019)***	(0.0014)***	(0.0013)***	(0.0034)***	(0.0023)***	(0.0014)***	(0.0013)***	(0.0018)	(0.0015)***	(0.0012)***	(0.0011)***	(0.0017)	(0.0015)	(0.0010)**	(0.0010)
SE (EHW)	(0.0010)***	(0.0010)***	(0.0007)***	(0.0007)***	(0.0010)***	(0.0010)***	(0.0007)***	(0.0007)***	(0.0011)**	(0.0010)***	(0.0008)***	(0.0007)***	(0.0014)	(0.0013)	(0.0009)**	(0.0009)*
%Δ	1.1	1.7	1.5	1.5	1.8	1.8	1.4	1.4	0.3	0.8	0.7	0.8	0.1	0.2	0.2	0.2
%Δ (95% CI – Clustered)	[0.6, 1.7]	[1.3, 2.1]	[1.3, 1.8]	[1.2, 1.7]	[1.1, 2.5]	[1.3, 2.2]	[1.1, 1.7]	[1.1, 1.6]	[-0.1, 0.6]	[0.5, 1.1]	[0.5, 1.0]	[0.6, 1.0]	[-0.3, 0.4]	[-0.1, 0.5]	[0.0, 0.4]	[-0.0, 0.4]
%Δ (95% CI – EHW)	[0.9, 1.3]	[1.5, 1.9]	[1.4, 1.7]	[1.3, 1.6]	[1.6, 2.0]	[1.6, 2.0]	[1.3, 1.6]	[1.3, 1.5]	[0.1, 0.5]	[0.6, 1.0]	[0.6, 0.9]	[0.7, 1.0]	[-0.2, 0.4]	[-0.1, 0.4]	[0.0, 0.4]	[-0.0, 0.3]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.948]				[0.948]				[0.949]				[0.950]		
Poisson																
NIH × Post April 2008	0.045	0.072	0.058	0.062	0.052	0.059	0.047	0.049	0.008	0.028	0.018	0.024	0.008	0.011	0.009	0.008
SE (Clustered)	(0.0055)***	(0.0037)***	(0.0030)***	(0.0026)***	(0.0056)***	(0.0040)***	(0.0028)***	(0.0023)***	(0.0033)**	(0.0023)***	(0.0019)***	(0.0016)***	(0.0024)***	(0.0018)***	(0.0014)***	(0.0013)***
SE (EHW)	(0.0008)***	(0.0008)***	(0.0027)***	(0.0027)***	(0.0008)***	(0.0008)***	(0.0027)***	(0.0027)***	(0.0009)***	(0.0009)***	(0.0029)***	(0.0029)***	(0.0011)***	(0.0010)***	(0.0037)**	(0.0037)**
%Δ	4.6	7.5	5.9	6.4	5.3	6.0	4.8	5.0	0.8	2.8	1.8	2.4	0.9	1.1	0.9	0.8
%Δ (95% CI – Clustered)	[3.4, 5.7]	[6.7, 8.3]	[5.3, 6.6]	[5.8, 6.9]	[4.1, 6.5]	[5.2, 6.9]	[4.2, 5.4]	[4.5, 5.5]	[0.1, 1.4]	[2.4, 3.3]	[1.4, 2.2]	[2.1, 2.7]	[0.4, 1.3]	[0.7, 1.5]	[0.6, 1.1]	[0.6, 1.1]
%Δ (95% CI – EHW)	[4.4, 4.7]	[7.3, 7.6]	[5.4, 6.5]	[5.8, 6.9]	[5.1, 5.5]	[5.9, 6.2]	[4.2, 5.4]	[4.5, 5.6]	[0.6, 1.0]	[2.6, 3.0]	[1.2, 2.4]	[1.8, 3.0]	[0.6, 1.1]	[0.9, 1.3]	[0.1, 1.6]	[0.1, 1.6]
Observations	6,108,951		6,051,701		4,918,431		4,888,986		3,067,679		3,034,706		1,288,882		1,271,771	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.025	0.046	0.039	0.041	0.038	0.045	0.036	0.038	0.003	0.021	0.013	0.018	0.006	0.009	0.007	0.007
SE (Clustered)	(0.0043)***	(0.0029)***	(0.0024)***	(0.0020)***	(0.0046)***	(0.0032)***	(0.0024)***	(0.0019)***	(0.0029)	(0.0020)***	(0.0017)***	(0.0014)***	(0.0022)***	(0.0016)***	(0.0012)***	(0.0012)***
SE (EHW)	(0.0007)***	(0.0007)***	(0.0005)***	(0.0005)***	(0.0007)***	(0.0007)***	(0.0005)***	(0.0005)***	(0.0008)***	(0.0007)***	(0.0006)***	(0.0005)***	(0.0010)***	(0.0009)***	(0.0007)***	(0.0007)***
%Δ	2.7	4.9	4.1	4.4	4.0	4.7	3.8	4.0	0.3	2.2	1.3	1.9	0.7	0.9	0.8	0.7
%Δ (95% CI – Clustered)	[1.8, 3.5]	[4.3, 5.5]	[3.6, 4.6]	[3.9, 4.8]	[3.1, 5.0]	[4.1, 5.4]	[3.3, 4.3]	[3.6, 4.4]	[-0.3, 0.9]	[1.8, 2.6]	[1.0, 1.7]	[1.6, 2.2]	[0.2, 1.1]	[0.6, 1.2]	[0.5, 1.0]	[0.5, 1.0]
%Δ (95% CI – EHW)	[2.5, 2.8]	[4.8, 5.0]	[4.0, 4.2]	[4.2, 4.5]	[3.9, 4.2]	[4.6, 4.8]	[3.7, 3.9]	[3.9, 4.1]	[0.1, 0.4]	[2.0, 2.3]	[1.2, 1.5]	[1.8, 2.0]	[0.5, 0.9]	[0.7, 1.1]	[0.6, 0.9]	[0.6, 0.8]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	0.022	0.041	0.034	0.036	0.034	0.039	0.032	0.033	0.002	0.018	0.011	0.016	0.006	0.008	0.006	0.006
SE (Clustered)	(0.0037)***	(0.0026)***	(0.0021)***	(0.0018)***	(0.0041)***	(0.0028)***	(0.0021)***	(0.0017)***	(0.0026)	(0.0018)***	(0.0015)***	(0.0013)***	(0.0019)***	(0.0014)***	(0.0011)***	(0.0010)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0005)***	(0.0004)***	(0.0006)***	(0.0006)***	(0.0005)***	(0.0005)***	(0.0007)***	(0.0006)***	(0.0005)***	(0.0005)***	(0.0009)***	(0.0008)***	(0.0006)***	(0.0006)***
%Δ	2.2	4.2	3.5	3.7	3.4	4.0	3.3	3.4	0.2	1.8	1.1	1.6	0.6	0.8	0.6	0.6
%Δ (95% CI – Clustered)	[1.5, 3.0]	[3.7, 4.7]	[3.1, 3.9]	[3.3, 4.1]	[2.6, 4.2]	[3.4, 4.6]	[2.8, 3.7]	[3.0, 3.7]	[-0.3, 0.7]	[1.5, 2.2]	[0.8, 1.4]	[1.3, 1.9]	[0.2, 0.9]	[0.5, 1.0]	[0.4, 0.9]	[0.4, 0.8]
%Δ (95% CI – EHW)	[2.1, 2.4]	[4.1, 4.3]	[3.4, 3.6]	[3.6, 3.8]	[3.3, 3.5]	[3.9, 4.1]	[3.2, 3.3]	[3.3, 3.5]	[0.1, 0.4]	[1.7, 2.0]	[1.0, 1.2]	[1.5, 1.7]	[0.4, 0.7]	[0.6, 0.9]	[0.5, 0.8]	[0.5, 0.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations – i.e. the number of citations an article ever receives. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.2.1. Count of 2-Year Cites (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[8.099]		[7.983]		[7.906]	
Poisson						
Post April 2008	0.005	-0.009	-0.035	-0.039	-0.022	-0.024
SE (EHW)	(0.0260)	(0.0274)	(0.0186)*	(0.0188)**	(0.0132)*	(0.0133)*
%Δ	0.5	-0.9	-3.5	-3.8	-2.2	-2.3
%Δ (95% CI – EHW)	[-4.5, 5.8]	[-6.1, 4.5]	[-6.9, 0.1]	[-7.3, -0.2]	[-4.7, 0.3]	[-4.8, 0.2]
Linear – Levels						
Post April 2008	0.038	-0.076	-0.282	-0.310	-0.179	-0.187
SE (EHW)	(0.2079)	(0.2212)	(0.1480)*	(0.1503)**	(0.1051)*	(0.1058)*
%Δ	0.5	-0.9	-3.5	-3.9	-2.3	-2.4
%Δ (95% CI – EHW)	[-4.6, 5.5]	[-6.3, 4.4]	[-7.2, 0.1]	[-7.6, -0.2]	[-4.9, 0.3]	[-5.0, 0.3]
Linear – IHS						
Post April 2008	0.008	-0.002	-0.020	-0.026	-0.013	-0.012
SE (EHW)	(0.0183)	(0.0194)	(0.0129)	(0.0131)**	(0.0091)	(0.0091)
%Δ	0.8	-0.2	-2.0	-2.5	-1.3	-1.2
%Δ (95% CI – EHW)	[-2.7, 4.5]	[-4.0, 3.6]	[-4.5, 0.5]	[-5.0, -0.0]	[-3.0, 0.5]	[-3.0, 0.6]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.004	0.027	-0.036	-0.031	-0.023	-0.036
SE (EHW)	(0.0265)	(0.0496)	(0.0187)*	(0.0285)	(0.0132)*	(0.0196)*
%Δ	-0.4	2.8	-3.5	-3.1	-2.3	-3.5
%Δ (95% CI – EHW)	[-5.4, 5.0]	[-6.8, 13.3]	[-7.0, 0.1]	[-8.4, 2.5]	[-4.8, 0.3]	[-7.2, 0.3]
Linear – Levels						
Post April 2008	-0.031	0.220	-0.285	-0.253	-0.186	-0.285
SE (EHW)	(0.2137)	(0.4004)	(0.1492)*	(0.2302)	(0.1055)*	(0.1567)*
%Δ	-0.4	2.7	-3.6	-3.2	-2.3	-3.6
%Δ (95% CI – EHW)	[-5.6, 4.8]	[-7.0, 12.4]	[-7.2, 0.1]	[-8.8, 2.5]	[-5.0, 0.3]	[-7.5, 0.3]
Linear – IHS						
Post April 2008	0.001	0.082	-0.022	-0.014	-0.012	-0.025
SE (EHW)	(0.0188)	(0.0348)**	(0.0130)*	(0.0201)	(0.0091)	(0.0135)*
%Δ	0.1	8.6	-2.2	-1.4	-1.2	-2.5
%Δ (95% CI – EHW)	[-3.5, 3.8]	[1.4, 16.2]	[-4.7, 0.3]	[-5.2, 2.6]	[-2.9, 0.6]	[-5.0, 0.2]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table H.2.2. Count of Lifetime Cites (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[29.075]		[29.503]		[30.849]	
Poisson						
Post April 2008	-0.000	-0.012	-0.030	-0.035	-0.020	-0.023
SE (EHW)	(0.0268)	(0.0281)	(0.0198)	(0.0200)*	(0.0143)	(0.0141)
%Δ	-0.0	-1.2	-3.0	-3.5	-2.0	-2.2
%Δ (95% CI – EHW)	[-5.1, 5.4]	[-6.5, 4.4]	[-6.7, 0.9]	[-7.2, 0.4]	[-4.7, 0.8]	[-4.9, 0.5]
Linear – Levels						
Post April 2008	-0.043	-0.355	-0.874	-0.999	-0.605	-0.727
SE (EHW)	(0.7442)	(0.7989)	(0.5462)	(0.5633)*	(0.3898)	(0.3956)*
%Δ	-0.1	-1.2	-3.0	-3.4	-2.0	-2.4
%Δ (95% CI – EHW)	[-5.2, 4.9]	[-6.6, 4.2]	[-6.6, 0.7]	[-7.1, 0.4]	[-4.4, 0.5]	[-4.9, 0.2]
Linear – IHS						
Post April 2008	0.010	-0.002	-0.010	-0.019	0.004	-0.004
SE (EHW)	(0.0204)	(0.0217)	(0.0143)	(0.0146)	(0.0101)	(0.0102)
%Δ	1.0	-0.2	-1.0	-1.9	0.4	-0.4
%Δ (95% CI – EHW)	[-3.0, 5.1]	[-4.4, 4.1]	[-3.7, 1.8]	[-4.6, 1.0]	[-1.6, 2.4]	[-2.4, 1.6]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.008	0.037	-0.032	-0.039	-0.019	-0.029
SE (EHW)	(0.0272)	(0.0514)	(0.0199)	(0.0296)	(0.0141)	(0.0212)
%Δ	-0.8	3.8	-3.1	-3.8	-1.9	-2.9
%Δ (95% CI – EHW)	[-5.9, 4.7]	[-6.1, 14.8]	[-6.9, 0.7]	[-9.2, 1.9]	[-4.5, 0.9]	[-6.8, 1.2]
Linear – Levels						
Post April 2008	-0.249	1.098	-0.908	-1.136	-0.697	-0.761
SE (EHW)	(0.7685)	(1.4678)	(0.5572)	(0.8500)	(0.3942)*	(0.6008)
%Δ	-0.9	3.8	-3.1	-3.9	-2.3	-2.5
%Δ (95% CI – EHW)	[-6.0, 4.3]	[-6.1, 13.7]	[-6.8, 0.6]	[-9.5, 1.8]	[-4.8, 0.2]	[-6.3, 1.4]
Linear – IHS						
Post April 2008	0.001	0.096	-0.014	-0.011	-0.002	-0.014
SE (EHW)	(0.0210)	(0.0389)**	(0.0145)	(0.0225)	(0.0102)	(0.0151)
%Δ	0.1	10.1	-1.4	-1.1	-0.2	-1.4
%Δ (95% CI – EHW)	[-3.9, 4.3]	[2.0, 18.8]	[-4.2, 1.4]	[-5.4, 3.3]	[-2.2, 1.8]	[-4.3, 1.6]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations – i.e. the number of citations an article ever receives. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table H.2.3. Dummy for Positive 2-Year Cites (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.876]		[0.874]		[0.875]	
Poisson						
Post April 2008	-0.000	-0.000	-0.002	-0.003	-0.003	-0.003
SE (EHW)	(0.0058)	(0.0061)	(0.0041)	(0.0041)	(0.0029)	(0.0029)
%Δ	-0.0	-0.0	-0.2	-0.3	-0.3	-0.3
%Δ (95% CI – EHW)	[-1.2, 1.1]	[-1.2, 1.2]	[-1.0, 0.6]	[-1.1, 0.5]	[-0.8, 0.3]	[-0.8, 0.3]
Linear – Levels						
Post April 2008	-0.000	-0.000	-0.002	-0.003	-0.002	-0.002
SE (EHW)	(0.0051)	(0.0054)	(0.0036)	(0.0036)	(0.0025)	(0.0025)
%Δ	-0.0	-0.0	-0.2	-0.3	-0.3	-0.3
%Δ (95% CI – EHW)	[-1.2, 1.1]	[-1.2, 1.2]	[-1.0, 0.6]	[-1.1, 0.5]	[-0.8, 0.3]	[-0.8, 0.3]
Linear – IHS						
Post April 2008	-0.000	-0.000	-0.001	-0.002	-0.002	-0.002
SE (EHW)	(0.0045)	(0.0047)	(0.0031)	(0.0032)	(0.0022)	(0.0022)
%Δ	-0.0	-0.0	-0.1	-0.2	-0.2	-0.2
%Δ (95% CI – EHW)	[-0.9, 0.9]	[-0.9, 0.9]	[-0.8, 0.5]	[-0.8, 0.4]	[-0.6, 0.2]	[-0.6, 0.2]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.000	0.026	-0.002	-0.002	-0.002	-0.003
SE (EHW)	(0.0059)	(0.0110)**	(0.0041)	(0.0064)	(0.0029)	(0.0043)
%Δ	-0.0	2.7	-0.2	-0.2	-0.2	-0.3
%Δ (95% CI – EHW)	[-1.2, 1.1]	[0.5, 4.9]	[-1.0, 0.6]	[-1.4, 1.1]	[-0.8, 0.3]	[-1.1, 0.5]
Linear – Levels						
Post April 2008	-0.000	0.023	-0.002	-0.002	-0.002	-0.003
SE (EHW)	(0.0052)	(0.0096)**	(0.0036)	(0.0056)	(0.0025)	(0.0037)
%Δ	-0.0	2.6	-0.2	-0.2	-0.2	-0.3
%Δ (95% CI – EHW)	[-1.2, 1.1]	[0.5, 4.8]	[-1.0, 0.6]	[-1.4, 1.1]	[-0.8, 0.3]	[-1.1, 0.5]
Linear – IHS						
Post April 2008	-0.000	0.020	-0.002	-0.001	-0.002	-0.002
SE (EHW)	(0.0046)	(0.0085)**	(0.0032)	(0.0049)	(0.0022)	(0.0033)
%Δ	-0.0	2.0	-0.2	-0.1	-0.2	-0.2
%Δ (95% CI – EHW)	[-0.9, 0.9]	[0.4, 3.7]	[-0.8, 0.4]	[-1.1, 0.8]	[-0.6, 0.2]	[-0.9, 0.4]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations – i.e., the number of citations an article receives within two years of publication. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table H.2.4. Dummy for Lifetime Cites (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.940]		[0.941]		[0.942]	
Poisson						
Post April 2008	0.002	0.002	0.002	0.002	0.001	0.001
SE (EHW)	(0.0039)	(0.0041)	(0.0027)	(0.0028)	(0.0019)	(0.0019)
%Δ	0.2	0.2	0.2	0.2	0.1	0.1
%Δ (95% CI – EHW)	[-0.6, 1.0]	[-0.6, 1.0]	[-0.3, 0.7]	[-0.4, 0.7]	[-0.3, 0.5]	[-0.3, 0.5]
Linear – Levels						
Post April 2008	0.002	0.002	0.002	0.001	0.001	0.001
SE (EHW)	(0.0036)	(0.0039)	(0.0026)	(0.0026)	(0.0018)	(0.0018)
%Δ	0.2	0.2	0.2	0.1	0.1	0.1
%Δ (95% CI – EHW)	[-0.6, 1.0]	[-0.6, 1.0]	[-0.3, 0.7]	[-0.4, 0.7]	[-0.3, 0.5]	[-0.3, 0.5]
Linear – IHS						
Post April 2008	0.002	0.002	0.002	0.001	0.001	0.001
SE (EHW)	(0.0032)	(0.0034)	(0.0022)	(0.0023)	(0.0016)	(0.0016)
%Δ	0.2	0.2	0.2	0.1	0.1	0.1
%Δ (95% CI – EHW)	[-0.5, 0.8]	[-0.5, 0.8]	[-0.3, 0.6]	[-0.3, 0.6]	[-0.2, 0.4]	[-0.2, 0.4]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	0.002	0.015	0.002	0.002	0.001	0.002
SE (EHW)	(0.0040)	(0.0073)**	(0.0027)	(0.0043)	(0.0019)	(0.0029)
%Δ	0.2	1.5	0.2	0.2	0.1	0.2
%Δ (95% CI – EHW)	[-0.6, 1.0]	[0.1, 3.0]	[-0.4, 0.7]	[-0.7, 1.0]	[-0.3, 0.5]	[-0.4, 0.7]
Linear – Levels						
Post April 2008	0.002	0.014	0.002	0.002	0.001	0.002
SE (EHW)	(0.0037)	(0.0068)**	(0.0026)	(0.0040)	(0.0018)	(0.0027)
%Δ	0.2	1.5	0.2	0.2	0.1	0.2
%Δ (95% CI – EHW)	[-0.6, 1.0]	[0.1, 2.9]	[-0.4, 0.7]	[-0.7, 1.0]	[-0.3, 0.5]	[-0.4, 0.7]
Linear – IHS						
Post April 2008	0.002	0.013	0.001	0.001	0.001	0.001
SE (EHW)	(0.0033)	(0.0060)**	(0.0023)	(0.0035)	(0.0016)	(0.0024)
%Δ	0.2	1.3	0.1	0.1	0.1	0.1
%Δ (95% CI – EHW)	[-0.5, 0.8]	[0.1, 2.5]	[-0.3, 0.6]	[-0.6, 0.8]	[-0.2, 0.4]	[-0.3, 0.6]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations – i.e. the number of citations an article ever receives. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table H.2.5. RD Placebo Manipulation Tests.

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)						
Poisson						
Post April 2008	-0.01	-0.04	0.01	0.01	0.03	0.03
P-Value (Permutation Test)	(0.8125)	(0.4583)	(0.7024)	(0.8333)	(0.3667)	(0.4167)
Linear – Levels						
Post April 2008	-86.31	-267.79	77.51	53.17	219.85	227.54
P-Value (Permutation Test)	(0.7604)	(0.4479)	(0.7500)	(0.7738)	(0.3500)	(0.3667)
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.03	-0.09	0.01	-0.03	0.03	0.01
P-Value (Permutation Test)	(0.6146)	(0.4479)	(0.7738)	(0.5714)	(0.4333)	(0.8333)
Linear – Levels						
Post April 2008	-189.08	-598.69	68.79	-228.24	225.89	51.26
P-Value (Permutation Test)	(0.6042)	(0.4167)	(0.7262)	(0.5357)	(0.3500)	(0.8000)
Polynomial Switch		Yes		Yes		Yes

Notes –.

Table H.3.1. Count of 2-Year Cites (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[7.922]				[7.922]				[7.957]				[7.972]		
Poisson																
NIH × Post April 2008	-0.061	-0.017	-0.042	-0.024	0.074	0.039	-0.016	0.001	-0.119	-0.037	-0.014	-0.001	-0.013	-0.009	0.054	0.032
NIH × Post April 2008 × TA	0.049	0.001	0.018	0.001	-0.068	-0.049	-0.005	-0.022	0.076	0.007	-0.030	-0.031	-0.018	-0.012	-0.087	-0.056
SE (Clustered)	(0.0635)	(0.0421)	(0.0272)	(0.0220)	(0.0906)	(0.0462)	(0.0261)	(0.0207)	(0.0522)	(0.0411)	(0.0249)	(0.0212)	(0.0466)	(0.0367)	(0.0345)**	(0.0286)**
SE (EHW)	(0.0331)	(0.0363)	(0.0082)**	(0.0082)	(0.0335)**	(0.0370)	(0.0083)	(0.0083)***	(0.0358)**	(0.0378)	(0.0087)***	(0.0088)***	(0.0493)	(0.0472)	(0.0109)***	(0.0109)***
%Δ	5.0	0.1	1.8	0.1	-6.5	-4.8	-0.5	-2.2	7.9	0.7	-3.0	-3.1	-1.8	-1.2	-8.4	-5.5
%Δ (95% CI – Clustered)	[-7.3, 18.9]	[-7.8, 8.7]	[-3.5, 7.4]	[-4.1, 4.6]	[-21.8, 11.6]	[-13.1, 4.2]	[-5.4, 4.7]	[-6.1, 1.9]	[-2.6, 19.6]	[-7.1, 9.2]	[-7.6, 1.9]	[-7.0, 1.0]	[-10.4, 7.6]	[-8.0, 6.2]	[-14.3, -1.9]	[-10.6, -0.0]
%Δ (95% CI – EHW)	[-1.6, 12.0]	[-6.8, 7.5]	[0.2, 3.5]	[-1.5, 1.8]	[-12.5, -0.2]	[-11.5, 2.3]	[-2.1, 1.2]	[-3.7, -0.6]	[0.6, 15.8]	[-6.5, 8.5]	[-4.6, -1.3]	[-4.7, -1.4]	[-10.9, 8.2]	[-9.9, 8.4]	[-10.3, -6.4]	[-7.5, -3.4]
Observations	2,103,480		2,050,617		1,707,823		1,678,808		1,203,393		1,169,735		451,968		439,222	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.149	-0.085	-0.009	0.055	0.255	-0.013	-0.000	0.087	-0.435	-0.064	0.042	0.152	-0.054	0.228	0.397	0.427
NIH × Post April 2008 × TA	0.202	0.102	0.043	-0.074	-0.154	0.043	0.009	-0.123	0.346	-0.048	-0.133	-0.253	-0.087	-0.376	-0.556	-0.582
SE (Clustered)	(0.2849)	(0.2437)	(0.1782)	(0.1651)	(0.3622)	(0.2291)	(0.1819)	(0.1628)	(0.2971)	(0.2393)	(0.1649)	(0.1496)*	(0.3068)	(0.2402)	(0.2159)**	(0.1876)***
SE (EHW)	(0.2234)	(0.2090)	(0.2084)	(0.1992)	(0.2282)	(0.2134)	(0.2133)	(0.2037)	(0.2370)	(0.2180)	(0.2218)	(0.2094)	(0.3198)	(0.2980)	(0.3096)*	(0.2958)**
%Δ	2.5	1.3	0.5	-0.9	-1.9	0.5	0.1	-1.6	4.3	-0.6	-1.7	-3.2	-1.1	-4.7	-7.0	-7.3
%Δ (95% CI – Clustered)	[-4.5, 9.6]	[-4.7, 7.3]	[-3.9, 5.0]	[-5.0, 3.2]	[-10.9, 7.0]	[-5.1, 6.2]	[-4.4, 4.6]	[-5.6, 2.5]	[-3.0, 11.7]	[-6.5, 5.3]	[-5.7, 2.4]	[-6.9, 0.5]	[-8.6, 6.5]	[-10.6, 1.2]	[-12.3, -1.7]	[-11.9, -2.7]
%Δ (95% CI – EHW)	[-3.0, 8.1]	[-3.9, 6.5]	[-4.6, 5.7]	[-5.9, 4.0]	[-7.6, 3.7]	[-4.7, 5.8]	[-5.2, 5.4]	[-6.6, 3.5]	[-1.5, 10.2]	[-6.0, 4.8]	[-7.1, 3.8]	[-8.3, 2.0]	[-9.0, 6.8]	[-12.0, 2.6]	[-14.6, 0.6]	[-14.6, -0.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.063	-0.035	-0.055	-0.040	0.069	0.009	-0.034	-0.018	-0.151	-0.062	-0.050	-0.032	-0.093	-0.039	-0.010	-0.009
NIH × Post April 2008 × TA	0.038	0.018	0.044	0.023	-0.076	-0.022	0.021	0.001	0.105	0.025	0.020	0.003	0.075	0.021	0.000	-0.001
SE (Clustered)	(0.0498)	(0.0340)	(0.0272)	(0.0248)	(0.0904)	(0.0371)	(0.0280)	(0.0246)	(0.0491)**	(0.0357)	(0.0246)	(0.0235)	(0.0503)	(0.0382)	(0.0283)	(0.0272)
SE (EHW)	(0.0238)	(0.0208)	(0.0198)**	(0.0184)	(0.0246)***	(0.0215)	(0.0206)	(0.0191)	(0.0257)***	(0.0220)	(0.0211)	(0.0195)	(0.0324)**	(0.0276)	(0.0265)	(0.0247)
%Δ	3.9	1.8	4.5	2.3	-7.3	-2.2	2.1	0.1	11.1	2.6	2.0	0.3	7.8	2.2	0.0	-0.1
%Δ (95% CI – Clustered)	[-5.8, 14.6]	[-4.8, 8.8]	[-0.9, 10.2]	[-2.6, 7.4]	[-22.4, 10.6]	[-9.0, 5.2]	[-3.4, 7.9]	[-4.6, 5.1]	[0.9, 22.3]	[-4.4, 10.0]	[-2.8, 7.0]	[-4.2, 5.0]	[-2.3, 19.0]	[-5.2, 10.1]	[-5.3, 5.8]	[-5.3, 5.3]
%Δ (95% CI – EHW)	[-0.8, 8.9]	[-2.3, 6.0]	[0.5, 8.6]	[-1.3, 6.0]	[-11.7, -2.8]	[-6.2, 2.0]	[-1.9, 6.3]	[-3.6, 3.9]	[5.6, 16.8]	[-1.8, 7.1]	[-2.1, 6.3]	[-3.5, 4.2]	[1.2, 14.9]	[-3.2, 7.9]	[-5.0, 5.4]	[-4.9, 4.8]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[7.763]				[7.763]				[7.783]				[7.807]		
Poisson																
NIH × Post April 2008	-0.200	-0.104	-0.151	-0.066	-0.030	-0.031	-0.118	-0.038	-0.256	-0.110	-0.116	-0.049	-0.136	-0.075	-0.033	-0.018
NIH × Post April 2008 × TA	0.181	0.087	0.103	0.011	0.055	0.032	0.079	-0.010	0.213	0.071	0.035	-0.017	0.172	0.089	0.018	-0.004
SE (Clustered)	(0.1365)	(0.0806)	(0.0631)	(0.0342)	(0.1333)	(0.0786)	(0.0622)	(0.0313)	(0.1142)*	(0.0733)	(0.0482)	(0.0269)	(0.0797)**	(0.0492)*	(0.0215)	(0.0203)
SE (EHW)	(0.0215)***	(0.0209)***	(0.0051)***	(0.0051)**	(0.0218)**	(0.0213)	(0.0051)***	(0.0051)**	(0.0235)***	(0.0232)***	(0.0054)***	(0.0054)***	(0.0299)***	(0.0302)***	(0.0068)***	(0.0068)
%Δ	19.8	9.1	10.8	1.1	5.7	3.3	8.2	-1.0	23.8	7.3	3.6	-1.7	18.7	9.3	1.8	-0.4
%Δ (95% CI – Clustered)	[-8.3, 56.6]	[-6.9, 27.7]	[-2.1, 25.4]	[-5.4, 8.1]	[-18.6, 37.2]	[-11.5, 20.5]	[-4.2, 22.3]	[-6.9, 5.2]	[-1.0, 54.8]	[-7.1, 23.9]	[-5.8, 13.8]	[-6.7, 3.6]	[1.6, 38.8]	[-0.7, 20.4]	[-2.4, 6.2]	[-4.3, 3.6]
%Δ (95% CI – EHW)	[14.9, 25.0]	[4.7, 13.6]	[9.7, 11.9]	[0.1, 2.1]	[1.3, 10.3]	[-0.9, 7.7]	[7.1, 9.3]	[-2.0, -0.0]	[18.2, 29.6]	[2.5, 12.3]	[2.5, 4.7]	[-2.7, -0.6]	[12.0, 25.9]	[3.1, 16.0]	[0.5, 3.2]	[-1.7, 0.9]
Observations	6,108,951		6,008,520		4,918,431		4,863,593		3,067,679		3,012,532		1,288,882		1,265,291	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-1.015	-0.856	-0.615	-0.341	-0.540	-0.689	-0.664	-0.328	-1.361	-0.678	-0.609	-0.224	-0.956	-0.387	-0.230	-0.022
NIH × Post April 2008 × TA	1.033	0.825	0.627	0.266	0.694	0.710	0.643	0.232	1.253	0.554	0.366	0.019	1.206	0.455	0.185	-0.087
SE (Clustered)	(0.5253)**	(0.4136)**	(0.3483)*	(0.2539)	(0.5610)	(0.3899)*	(0.3658)*	(0.2507)	(0.5371)**	(0.3696)	(0.2858)	(0.1953)	(0.4817)**	(0.3261)	(0.1620)	(0.1470)
SE (EHW)	(0.1433)***	(0.1351)***	(0.1376)***	(0.1322)**	(0.1463)***	(0.1378)***	(0.1400)***	(0.1344)*	(0.1528)***	(0.1410)***	(0.1466)**	(0.1388)	(0.1925)***	(0.1793)**	(0.1868)	(0.1785)
%Δ	13.3	10.6	8.1	3.4	8.9	9.1	8.3	3.0	16.1	7.1	4.7	0.2	15.4	5.8	2.4	-1.1
%Δ (95% CI – Clustered)	[0.0, 26.6]	[0.2, 21.1]	[-0.7, 16.9]	[-3.0, 9.8]	[-5.2, 23.1]	[-0.7, 19.0]	[-1.0, 17.5]	[-3.3, 9.3]	[2.6, 29.6]	[-2.2, 16.4]	[-2.5, 11.9]	[-4.7, 5.2]	[3.4, 27.5]	[-2.4, 14.0]	[-1.7, 6.4]	[-4.8, 2.6]
%Δ (95% CI – EHW)	[9.7, 16.9]	[7.2, 14.0]	[4.6, 11.6]	[0.1, 6.8]	[5.2, 12.6]	[5.7, 12.6]	[4.7, 11.8]	[-0.4, 6.4]	[12.3, 20.0]	[3.6, 10.7]	[1.0, 8.4]	[-3.3, 3.7]	[10.6, 20.3]	[1.3, 10.3]	[-2.3, 7.1]	[-5.6, 3.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.189	-0.112	-0.161	-0.097	-0.047	-0.059	-0.146	-0.076	-0.306	-0.139	-0.157	-0.090	-0.200	-0.101	-0.066	-0.041
NIH × Post April 2008 × TA	0.095	0.045	0.107	0.038	-0.003	0.008	0.092	0.018	0.194	0.060	0.064	0.012	0.192	0.077	0.039	0.008
SE (Clustered)	(0.0739)	(0.0376)	(0.0510)**	(0.0318)	(0.1043)	(0.0430)	(0.0554)*	(0.0325)	(0.0771)**	(0.0374)	(0.0422)	(0.0272)	(0.0710)***	(0.0391)**	(0.0270)	(0.0230)
SE (EHW)	(0.0145)***	(0.0127)***	(0.0127)***	(0.0117)***	(0.0150)	(0.0131)	(0.0131)***	(0.0120)	(0.0158)***	(0.0135)***	(0.0135)***	(0.0124)	(0.0199)***	(0.0169)***	(0.0169)**	(0.0156)
%Δ	9.9	4.6	11.3	3.9	-0.3	0.8	9.6	1.8	21.4	6.2	6.6	1.3	21.1	8.0	4.0	0.8
%Δ (95% CI – Clustered)	[-4.9, 27.1]	[-2.8, 12.6]	[0.7, 23.0]	[-2.4, 10.6]	[-18.7, 22.3]	[-7.3, 9.7]	[-1.7, 22.2]	[-4.4, 8.5]	[4.4, 41.2]	[-1.3, 14.3]	[-1.8, 15.8]	[-4.0, 6.8]	[5.4, 39.2]	[0.1, 16.6]	[-1.4, 9.6]	[-3.7, 5.4]
%Δ (95% CI – EHW)	[6.9, 13.1]	[2.0, 7.2]	[8.5, 14.1]	[1.5, 6.3]	[-3.2, 2.7]	[-1.8, 3.4]	[6.9, 12.5]	[-0.5, 4.3]	[17.7, 25.2]	[3.4, 9.0]	[3.8, 9.5]	[-1.2, 3.7]	[16.5, 25.9]	[4.5, 11.7]	[0.6, 7.5]	[-2.3, 3.9]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.3.2. Count of Lifetime Cites (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[30.836]				[30.836]				[30.970]				[31.040]		
Poisson																
NIH × Post April 2008	0.003	0.046	0.005	0.022	0.125	0.091	0.017	0.034	-0.079	0.003	0.015	0.027	0.026	0.034	0.084	0.062
NIH × Post April 2008 × TA	0.002	-0.042	-0.010	-0.027	-0.103	-0.082	-0.022	-0.039	0.056	-0.013	-0.043	-0.044	-0.052	-0.051	-0.114	-0.084
SE (Clustered)	(0.0748)	(0.0516)	(0.0355)	(0.0309)	(0.1054)	(0.0586)	(0.0358)	(0.0307)	(0.0576)	(0.0494)	(0.0353)	(0.0322)	(0.0582)	(0.0524)	(0.0525)**	(0.0480)*
SE (EHW)	(0.0374)	(0.0414)	(0.0044)**	(0.0044)***	(0.0382)***	(0.0424)*	(0.0044)***	(0.0045)***	(0.0406)	(0.0433)	(0.0047)***	(0.0047)***	(0.0582)	(0.0567)	(0.0058)***	(0.0058)***
%Δ	0.2	-4.1	-1.0	-2.7	-9.7	-7.9	-2.1	-3.8	5.8	-1.3	-4.2	-4.3	-5.1	-5.0	-10.7	-8.1
%Δ (95% CI – Clustered)	[-13.4, 16.1]	[-13.3, 6.1]	[-7.7, 6.1]	[-8.4, 3.4]	[-26.6, 11.0]	[-17.9, 3.3]	[-8.8, 5.0]	[-9.4, 2.1]	[-5.5, 18.4]	[-10.4, 8.7]	[-10.6, 2.7]	[-10.2, 1.9]	[-15.3, 6.4]	[-14.2, 5.3]	[-19.5, -1.1]	[-16.3, 1.0]
%Δ (95% CI – EHW)	[-6.9, 7.9]	[-11.5, 4.0]	[-1.9, -0.2]	[-3.5, -1.8]	[-16.3, -2.7]	[-15.2, 0.1]	[-3.0, -1.3]	[-4.7, -3.0]	[-2.3, 14.6]	[-9.3, 7.4]	[-5.1, -3.3]	[-5.2, -3.5]	[-15.3, 6.4]	[-15.0, 6.2]	[-11.8, -9.7]	[-9.1, -7.0]
Observations	2,103,480		2,069,326		1,707,823		1,689,386		1,203,393		1,180,667		451,968		441,757	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-4.865	-4.609	-4.298	-4.019	-2.467	-3.301	-3.086	-2.753	-4.710	-3.456	-3.098	-2.686	-1.542	-0.579	-0.156	-0.024
NIH × Post April 2008 × TA	0.129	-0.187	-0.475	-0.882	-1.479	-0.827	-1.053	-1.491	0.463	-0.806	-1.149	-1.547	-1.142	-2.098	-2.578	-2.673
SE (Clustered)	(1.3142)	(1.2796)	(1.0980)	(1.1056)	(1.4439)	(1.2044)	(1.1064)	(1.0810)	(1.3041)	(1.2374)	(0.9986)	(1.0174)	(1.3685)	(1.2554)*	(1.1996)**	(1.1559)**
SE (EHW)	(0.9002)	(0.8630)	(0.8550)	(0.8321)	(0.9226)	(0.8842)	(0.8795)	(0.8550)*	(0.9547)	(0.9064)	(0.9151)	(0.8849)*	(1.3652)	(1.3114)	(1.3786)*	(1.3451)**
%Δ	0.4	-0.6	-1.5	-2.9	-4.8	-2.7	-3.4	-4.8	1.5	-2.6	-3.7	-5.0	-3.7	-6.8	-8.3	-8.6
%Δ (95% CI – Clustered)	[-7.9, 8.8]	[-8.7, 7.5]	[-8.5, 5.4]	[-9.9, 4.2]	[-14.0, 4.4]	[-10.3, 5.0]	[-10.4, 3.6]	[-11.7, 2.0]	[-6.8, 9.7]	[-10.4, 5.2]	[-10.0, 2.6]	[-11.4, 1.4]	[-12.3, 5.0]	[-14.7, 1.2]	[-15.9, -0.7]	[-15.9, -1.3]
%Δ (95% CI – EHW)	[-5.3, 6.1]	[-6.1, 4.9]	[-7.0, 3.9]	[-8.2, 2.4]	[-10.7, 1.1]	[-8.3, 2.9]	[-9.0, 2.2]	[-10.3, 0.6]	[-4.5, 7.5]	[-8.3, 3.1]	[-9.5, 2.1]	[-10.6, 0.6]	[-12.3, 4.9]	[-15.0, 1.5]	[-17.0, 0.4]	[-17.1, -0.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.109	-0.065	-0.137	-0.112	0.128	0.050	-0.072	-0.048	-0.233	-0.110	-0.118	-0.089	-0.142	-0.069	-0.053	-0.048
NIH × Post April 2008 × TA	0.038	0.010	0.089	0.057	-0.145	-0.071	0.051	0.023	0.159	0.053	0.064	0.040	0.117	0.047	0.037	0.032
SE (Clustered)	(0.0733)	(0.0411)	(0.0352)**	(0.0327)*	(0.1464)	(0.0595)	(0.0347)	(0.0294)	(0.0585)***	(0.0423)	(0.0305)**	(0.0292)	(0.0554)**	(0.0409)	(0.0301)	(0.0291)
SE (EHW)	(0.0270)	(0.0235)	(0.0214)***	(0.0198)***	(0.0279)***	(0.0242)***	(0.0224)**	(0.0205)	(0.0294)***	(0.0249)**	(0.0228)***	(0.0210)*	(0.0368)***	(0.0310)	(0.0284)	(0.0263)
%Δ	3.8	1.0	9.3	5.9	-13.5	-6.9	5.2	2.3	17.2	5.5	6.6	4.1	12.4	4.8	3.8	3.3
%Δ (95% CI – Clustered)	[-10.1, 19.9]	[-6.8, 9.5]	[2.0, 17.1]	[-0.7, 12.9]	[-35.1, 15.3]	[-17.1, 4.6]	[-1.7, 12.6]	[-3.4, 8.4]	[4.5, 31.4]	[-2.9, 14.6]	[0.4, 13.2]	[-1.7, 10.2]	[0.8, 25.3]	[-3.3, 13.6]	[-2.1, 10.1]	[-2.4, 9.3]
%Δ (95% CI – EHW)	[-1.5, 9.5]	[-3.5, 5.8]	[4.8, 14.0]	[1.9, 10.1]	[-18.1, -8.6]	[-11.2, -2.3]	[0.7, 9.9]	[-1.7, 6.5]	[10.6, 24.1]	[0.5, 10.8]	[2.0, 11.5]	[-0.1, 8.4]	[4.6, 20.8]	[-1.4, 11.4]	[-1.8, 9.8]	[-1.9, 8.7]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[37.729]				[37.729]				[37.812]				[37.930]		
Poisson																
NIH × Post April 2008	-0.121	-0.017	-0.094	-0.004	0.036	0.038	-0.078	0.007	-0.191	-0.053	-0.084	-0.016	-0.131	-0.068	-0.037	-0.021
NIH × Post April 2008 × TA	0.148	0.050	0.087	-0.007	0.032	0.008	0.076	-0.016	0.206	0.058	0.043	-0.019	0.170	0.084	0.021	-0.002
SE (Clustered)	(0.1388)	(0.0808)	(0.0663)	(0.0384)	(0.1432)	(0.0822)	(0.0665)	(0.0372)	(0.1180)*	(0.0774)	(0.0541)	(0.0358)	(0.0799)**	(0.0526)	(0.0289)	(0.0312)
SE (EHW)	(0.0269)***	(0.0267)*	(0.0028)***	(0.0028)**	(0.0276)	(0.0274)	(0.0028)***	(0.0028)***	(0.0296)***	(0.0301)*	(0.0029)***	(0.0030)***	(0.0353)***	(0.0374)**	(0.0037)***	(0.0037)
%Δ	16.0	5.1	9.1	-0.7	3.2	0.8	7.9	-1.6	22.9	5.9	4.4	-1.9	18.5	8.7	2.1	-0.2
%Δ (95% CI – Clustered)	[-11.6, 52.3]	[-10.3, 23.2]	[-4.2, 24.2]	[-7.9, 7.1]	[-22.0, 36.7]	[-14.2, 18.4]	[-5.3, 22.9]	[-8.5, 5.8]	[-2.5, 54.8]	[-9.0, 23.3]	[-6.1, 16.0]	[-8.5, 5.3]	[1.4, 38.6]	[-1.9, 20.5]	[-3.5, 8.0]	[-6.1, 6.1]
%Δ (95% CI – EHW)	[10.0, 22.3]	[-0.2, 10.8]	[8.5, 9.7]	[-1.2, -0.2]	[-2.2, 9.0]	[-4.5, 6.4]	[7.3, 8.5]	[-2.1, -1.1]	[15.9, 30.2]	[-0.1, 12.4]	[3.8, 5.0]	[-2.4, -1.3]	[10.6, 27.0]	[1.0, 17.0]	[1.4, 2.8]	[-0.9, 0.5]
Observations	6,108,951		6,051,701		4,918,431		4,888,986		3,067,679		3,034,706		1,288,882		1,271,771	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-15.364	-14.485	-12.336	-10.777	-10.914	-11.253	-9.928	-8.408	-12.625	-10.022	-9.217	-7.477	-8.661	-6.645	-5.916	-5.006
NIH × Post April 2008 × TA	3.075	2.444	0.385	-1.122	0.837	1.036	-0.417	-1.909	3.436	1.099	-0.143	-1.491	4.138	1.620	0.662	-0.377
SE (Clustered)	(2.4925)	(2.2975)	(2.2261)	(1.9715)	(2.4869)	(2.1621)	(2.2644)	(1.9169)	(2.4516)	(2.0921)	(1.9520)	(1.7072)	(2.1846)*	(1.8715)	(1.3965)	(1.3753)
SE (EHW)	(0.7703)***	(0.7523)***	(0.7541)	(0.7418)	(0.7895)	(0.7705)	(0.7767)	(0.7633)**	(0.8223)***	(0.7983)	(0.8173)	(0.8016)*	(0.9887)***	(0.9592)*	(0.9895)	(0.9728)
%Δ	8.2	6.5	1.0	-3.0	2.2	2.7	-1.1	-5.1	9.1	2.9	-0.4	-3.9	10.9	4.3	1.7	-1.0
%Δ (95% CI – Clustered)	[-4.8, 21.1]	[-5.5, 18.4]	[-10.5, 12.6]	[-13.2, 7.3]	[-10.7, 15.1]	[-8.5, 14.0]	[-12.9, 10.7]	[-15.0, 4.9]	[-3.6, 21.8]	[-7.9, 13.8]	[-10.5, 9.7]	[-12.8, 4.9]	[-0.4, 22.2]	[-5.4, 13.9]	[-5.5, 9.0]	[-8.1, 6.1]
%Δ (95% CI – EHW)	[4.1, 12.2]	[2.6, 10.4]	[-2.9, 4.9]	[-6.8, 0.9]	[-1.9, 6.3]	[-1.3, 6.7]	[-5.1, 2.9]	[-9.0, -1.1]	[4.8, 13.4]	[-1.2, 7.0]	[-4.6, 3.9]	[-8.1, 0.2]	[5.8, 16.0]	[-0.7, 9.2]	[-3.4, 6.9]	[-6.0, 4.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.401	-0.266	-0.351	-0.246	-0.091	-0.093	-0.237	-0.133	-0.472	-0.240	-0.278	-0.179	-0.283	-0.158	-0.120	-0.085
NIH × Post April 2008 × TA	0.150	0.079	0.178	0.074	-0.022	-0.005	0.136	0.032	0.275	0.104	0.122	0.049	0.251	0.114	0.074	0.034
SE (Clustered)	(0.1096)	(0.0526)	(0.0804)**	(0.0545)	(0.1498)	(0.0628)	(0.0835)	(0.0502)	(0.1041)***	(0.0523)**	(0.0650)*	(0.0441)	(0.0898)***	(0.0519)**	(0.0399)*	(0.0340)
SE (EHW)	(0.0165)***	(0.0145)***	(0.0142)***	(0.0130)***	(0.0170)	(0.0148)	(0.0147)***	(0.0133)**	(0.0181)***	(0.0154)***	(0.0151)***	(0.0138)***	(0.0227)***	(0.0191)***	(0.0187)***	(0.0172)**
%Δ	16.2	8.2	19.5	7.7	-2.2	-0.5	14.6	3.2	31.6	11.0	12.9	5.0	28.5	12.0	7.7	3.4
%Δ (95% CI – Clustered)	[-6.3, 44.0]	[-2.4, 19.9]	[2.0, 39.9]	[-3.3, 19.8]	[-27.1, 31.2]	[-12.0, 12.5]	[-2.7, 34.9]	[-6.4, 13.9]	[7.3, 61.4]	[0.2, 23.0]	[-0.6, 28.3]	[-3.7, 14.5]	[7.8, 53.3]	[1.2, 24.0]	[-0.4, 16.5]	[-3.2, 10.6]
%Δ (95% CI – EHW)	[12.5, 20.0]	[5.2, 11.3]	[16.2, 22.8]	[5.0, 10.4]	[-5.4, 1.2]	[-3.4, 2.4]	[11.3, 17.9]	[0.6, 6.0]	[27.1, 36.4]	[7.7, 14.4]	[9.7, 16.3]	[2.2, 7.9]	[22.9, 34.4]	[7.9, 16.3]	[3.9, 11.7]	[0.0, 7.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations – i.e. the number of citations an article ever receives. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, δ, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.3.3. Dummy for Positive 2-Year Cites (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.875]				[0.875]				[0.875]				[0.876]		
Poisson																
NIH × Post April 2008	-0.058	-0.026	-0.062	-0.052	0.048	0.037	-0.012	-0.004	-0.081	-0.037	-0.034	-0.025	-0.033	-0.015	-0.006	-0.006
NIH × Post April 2008 × TA	0.037	0.014	0.049	0.039	-0.054	-0.043	0.004	-0.004	0.057	0.021	0.017	0.011	0.031	0.014	0.006	0.005
SE (Clustered)	(0.0259)	(0.0167)	(0.0179)***	(0.0172)**	(0.0511)	(0.0266)	(0.0117)	(0.0104)	(0.0218)***	(0.0167)	(0.0119)	(0.0115)	(0.0185)*	(0.0152)	(0.0117)	(0.0117)
SE (EHW)	(0.0095)***	(0.0096)	(0.0227)**	(0.0227)*	(0.0092)***	(0.0093)***	(0.0231)	(0.0232)	(0.0101)***	(0.0100)**	(0.0243)	(0.0243)	(0.0117)***	(0.0107)	(0.0304)	(0.0304)
%Δ	3.8	1.4	5.1	4.0	-5.3	-4.2	0.4	-0.4	5.9	2.1	1.8	1.1	3.1	1.4	0.6	0.5
%Δ (95% CI – Clustered)	[-1.3, 9.2]	[-1.8, 4.8]	[1.5, 8.8]	[0.5, 7.5]	[-14.3, 4.7]	[-9.1, 0.9]	[-1.8, 2.8]	[-2.4, 1.7]	[1.5, 10.5]	[-1.2, 5.5]	[-0.6, 4.2]	[-1.1, 3.4]	[-0.6, 6.9]	[-1.6, 4.5]	[-1.7, 2.9]	[-1.8, 2.8]
%Δ (95% CI – EHW)	[1.9, 5.8]	[-0.5, 3.4]	[0.5, 9.8]	[-0.5, 8.7]	[-6.9, -3.5]	[-5.9, -2.5]	[-4.0, 5.1]	[-4.8, 4.2]	[3.8, 8.0]	[0.1, 4.1]	[-3.0, 6.7]	[-3.6, 6.0]	[0.8, 5.5]	[-0.7, 3.6]	[-5.2, 6.8]	[-5.4, 6.6]
Observations	2,103,480		2,050,617		1,707,823		1,678,808		1,203,393		1,169,735		451,968		439,222	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.029	-0.014	-0.031	-0.025	0.034	0.020	-0.007	-0.003	-0.054	-0.024	-0.021	-0.015	-0.027	-0.010	-0.004	-0.004
NIH × Post April 2008 × TA	0.016	0.007	0.024	0.017	-0.038	-0.024	0.002	-0.004	0.036	0.012	0.010	0.005	0.024	0.008	0.004	0.003
SE (Clustered)	(0.0152)	(0.0106)	(0.0102)**	(0.0099)*	(0.0336)	(0.0155)	(0.0089)	(0.0081)	(0.0147)**	(0.0116)	(0.0085)	(0.0084)	(0.0152)	(0.0125)	(0.0098)	(0.0098)
SE (EHW)	(0.0071)**	(0.0066)	(0.0060)***	(0.0059)***	(0.0074)***	(0.0069)***	(0.0063)	(0.0062)	(0.0079)***	(0.0072)	(0.0065)	(0.0064)	(0.0099)**	(0.0089)	(0.0080)	(0.0079)
%Δ	1.8	0.7	2.7	1.9	-4.4	-2.8	0.2	-0.4	4.1	1.3	1.1	0.6	2.8	0.9	0.5	0.3
%Δ (95% CI – Clustered)	[-1.6, 5.2]	[-1.6, 3.1]	[0.4, 5.0]	[-0.3, 4.1]	[-11.9, 3.1]	[-6.2, 0.7]	[-1.8, 2.2]	[-2.2, 1.4]	[0.8, 7.4]	[-1.3, 3.9]	[-0.8, 3.0]	[-1.3, 2.5]	[-0.6, 6.2]	[-1.9, 3.8]	[-1.7, 2.7]	[-1.9, 2.5]
%Δ (95% CI – EHW)	[0.2, 3.4]	[-0.7, 2.2]	[1.4, 4.0]	[0.6, 3.2]	[-6.0, -2.7]	[-4.3, -1.2]	[-1.2, 1.6]	[-1.8, 1.0]	[2.4, 5.9]	[-0.3, 2.9]	[-0.3, 2.6]	[-0.8, 2.0]	[0.6, 5.0]	[-1.1, 3.0]	[-1.3, 2.3]	[-1.4, 2.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.026	-0.013	-0.027	-0.022	0.030	0.017	-0.007	-0.002	-0.047	-0.021	-0.019	-0.014	-0.024	-0.009	-0.004	-0.003
NIH × Post April 2008 × TA	0.014	0.006	0.021	0.015	-0.034	-0.021	0.002	-0.003	0.032	0.010	0.009	0.005	0.022	0.007	0.004	0.002
SE (Clustered)	(0.0134)	(0.0093)	(0.0090)**	(0.0087)*	(0.0296)	(0.0136)	(0.0079)	(0.0072)	(0.0130)**	(0.0102)	(0.0075)	(0.0074)	(0.0134)	(0.0111)	(0.0086)	(0.0086)
SE (EHW)	(0.0063)**	(0.0058)	(0.0053)***	(0.0052)***	(0.0065)***	(0.0061)***	(0.0056)	(0.0054)	(0.0070)***	(0.0064)	(0.0057)	(0.0056)	(0.0087)**	(0.0079)	(0.0071)	(0.0069)
%Δ	1.4	0.6	2.1	1.5	-3.3	-2.1	0.2	-0.3	3.2	1.0	0.9	0.5	2.2	0.7	0.4	0.2
%Δ (95% CI – Clustered)	[-1.2, 4.1]	[-1.2, 2.4]	[0.3, 3.9]	[-0.2, 3.2]	[-8.8, 2.5]	[-4.7, 0.5]	[-1.4, 1.7]	[-1.7, 1.1]	[0.7, 5.9]	[-1.0, 3.1]	[-0.6, 2.4]	[-1.0, 1.9]	[-0.5, 4.9]	[-1.4, 2.9]	[-1.3, 2.1]	[-1.4, 2.0]
%Δ (95% CI – EHW)	[0.1, 2.6]	[-0.6, 1.7]	[1.0, 3.2]	[0.5, 2.5]	[-4.6, -2.1]	[-3.3, -1.0]	[-0.9, 1.3]	[-1.4, 0.7]	[1.8, 4.7]	[-0.2, 2.3]	[-0.3, 2.0]	[-0.6, 1.6]	[0.4, 3.9]	[-0.8, 2.3]	[-1.0, 1.8]	[-1.1, 1.6]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.879]				[0.879]				[0.879]				[0.880]		
Poisson																
NIH × Post April 2008	-0.148	-0.064	-0.139	-0.099	-0.005	0.008	-0.071	-0.039	-0.160	-0.079	-0.087	-0.060	-0.073	-0.042	-0.027	-0.021
NIH × Post April 2008 × TA	0.085	0.031	0.100	0.064	-0.020	-0.027	0.047	0.016	0.108	0.049	0.048	0.029	0.067	0.035	0.019	0.011
SE (Clustered)	(0.0533)	(0.0237)	(0.0277)***	(0.0204)***	(0.0591)	(0.0301)	(0.0242)*	(0.0152)	(0.0370)***	(0.0186)***	(0.0206)**	(0.0154)*	(0.0248)***	(0.0156)**	(0.0128)	(0.0117)
SE (EHW)	(0.0059)***	(0.0057)***	(0.0140)***	(0.0140)***	(0.0058)***	(0.0055)***	(0.0142)***	(0.0142)	(0.0063)***	(0.0059)***	(0.0150)***	(0.0150)*	(0.0075)***	(0.0068)***	(0.0187)	(0.0187)
%Δ	8.8	3.2	10.6	6.6	-2.0	-2.7	4.8	1.6	11.4	5.0	4.9	2.9	7.0	3.6	1.9	1.1
%Δ (95% CI – Clustered)	[-2.0, 20.8]	[-1.5, 8.1]	[4.7, 16.7]	[2.5, 11.0]	[-12.7, 10.1]	[-8.2, 3.3]	[-0.1, 9.9]	[-1.4, 4.7]	[3.7, 19.8]	[1.3, 8.9]	[0.7, 9.2]	[-0.1, 6.1]	[1.9, 12.3]	[0.5, 6.8]	[-0.6, 4.5]	[-1.2, 3.5]
%Δ (95% CI – EHW)	[7.6, 10.1]	[2.0, 4.3]	[7.6, 13.6]	[3.8, 9.6]	[-3.1, -0.9]	[-3.7, -1.6]	[1.9, 7.7]	[-1.2, 4.5]	[10.1, 12.8]	[3.8, 6.3]	[1.8, 8.0]	[-0.0, 6.0]	[5.4, 8.5]	[2.2, 5.0]	[-1.8, 5.7]	[-2.5, 4.9]
Observations	6,108,951		6,008,520		4,918,431		4,863,593		3,067,679		3,012,532		1,288,882		1,265,291	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.080	-0.038	-0.077	-0.053	-0.007	-0.002	-0.052	-0.028	-0.111	-0.053	-0.061	-0.041	-0.060	-0.033	-0.022	-0.017
NIH × Post April 2008 × TA	0.038	0.016	0.055	0.032	-0.013	-0.012	0.035	0.012	0.071	0.031	0.033	0.019	0.054	0.026	0.015	0.009
SE (Clustered)	(0.0243)	(0.0099)	(0.0172)***	(0.0120)***	(0.0371)	(0.0162)	(0.0178)*	(0.0112)	(0.0218)***	(0.0104)***	(0.0145)**	(0.0109)*	(0.0190)***	(0.0118)**	(0.0105)	(0.0095)
SE (EHW)	(0.0044)***	(0.0041)***	(0.0039)***	(0.0038)***	(0.0046)***	(0.0043)***	(0.0041)***	(0.0040)***	(0.0049)***	(0.0045)***	(0.0043)***	(0.0041)***	(0.0062)***	(0.0056)***	(0.0053)***	(0.0052)*
%Δ	4.4	1.8	6.3	3.7	-1.5	-1.4	3.9	1.3	8.1	3.5	3.8	2.2	6.1	2.9	1.7	1.0
%Δ (95% CI – Clustered)	[-1.0, 9.8]	[-0.4, 4.0]	[2.5, 10.1]	[1.0, 6.4]	[-9.8, 6.8]	[-5.0, 2.2]	[-0.0, 7.9]	[-1.2, 3.8]	[3.3, 13.0]	[1.2, 5.8]	[0.5, 7.0]	[-0.3, 4.6]	[1.9, 10.4]	[0.3, 5.6]	[-0.6, 4.1]	[-1.1, 3.1]
%Δ (95% CI – EHW)	[3.4, 5.4]	[0.9, 2.7]	[5.4, 7.2]	[2.8, 4.5]	[-2.5, -0.5]	[-2.3, -0.4]	[3.0, 4.9]	[0.4, 2.2]	[7.0, 9.2]	[2.5, 4.5]	[2.8, 4.7]	[1.2, 3.1]	[4.8, 7.5]	[1.7, 4.2]	[0.5, 2.9]	[-0.2, 2.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.071	-0.034	-0.068	-0.047	-0.006	-0.002	-0.046	-0.025	-0.098	-0.047	-0.054	-0.036	-0.053	-0.029	-0.019	-0.015
NIH × Post April 2008 × TA	0.034	0.014	0.049	0.029	-0.012	-0.011	0.030	0.010	0.063	0.027	0.029	0.017	0.048	0.023	0.013	0.008
SE (Clustered)	(0.0214)	(0.0087)	(0.0152)***	(0.0106)***	(0.0327)	(0.0143)	(0.0157)*	(0.0099)	(0.0192)***	(0.0091)***	(0.0128)**	(0.0096)*	(0.0168)***	(0.0104)**	(0.0092)	(0.0083)
SE (EHW)	(0.0039)***	(0.0036)***	(0.0035)***	(0.0034)***	(0.0040)***	(0.0038)***	(0.0036)***	(0.0035)***	(0.0043)***	(0.0039)***	(0.0038)***	(0.0037)***	(0.0054)***	(0.0049)***	(0.0047)***	(0.0046)*
%Δ	3.5	1.4	5.0	2.9	-1.2	-1.1	3.1	1.0	6.5	2.7	3.0	1.7	4.9	2.3	1.3	0.8
%Δ (95% CI – Clustered)	[-0.8, 7.9]	[-0.3, 3.1]	[1.9, 8.2]	[0.8, 5.1]	[-7.3, 5.4]	[-3.8, 1.7]	[-0.0, 6.3]	[-0.9, 3.0]	[2.6, 10.6]	[0.9, 4.6]	[0.4, 5.6]	[-0.2, 3.6]	[1.5, 8.4]	[0.3, 4.4]	[-0.5, 3.2]	[-0.9, 2.4]
%Δ (95% CI – EHW)	[2.7, 4.2]	[0.7, 2.1]	[4.3, 5.7]	[2.2, 3.6]	[-1.9, -0.4]	[-1.8, -0.3]	[2.4, 3.8]	[0.3, 1.7]	[5.6, 7.4]	[1.9, 3.5]	[2.2, 3.7]	[1.0, 2.4]	[3.8, 6.0]	[1.3, 3.3]	[0.4, 2.3]	[-0.1, 1.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes	Yes	Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table H.3.4. Dummy for Lifetime Cites (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.943]				[0.943]				[0.942]				[0.943]		
Poisson																
NIH × Post April 2008	0.022	0.043	-0.005	0.002	0.076	0.070	0.004	0.009	-0.027	0.002	-0.011	-0.005	-0.022	-0.009	-0.012	-0.011
NIH × Post April 2008 × TA	-0.004	-0.018	0.032	0.024	-0.054	-0.048	0.017	0.011	0.033	0.010	0.023	0.018	0.024	0.013	0.016	0.014
SE (Clustered)	(0.0210)	(0.0138)	(0.0128)**	(0.0126)*	(0.0488)	(0.0328)	(0.0079)**	(0.0074)	(0.0134)**	(0.0126)	(0.0080)***	(0.0079)**	(0.0107)**	(0.0100)	(0.0076)**	(0.0076)*
SE (EHW)	(0.0062)	(0.0062)***	(0.0215)	(0.0215)	(0.0061)***	(0.0059)***	(0.0221)	(0.0221)	(0.0066)***	(0.0064)	(0.0231)	(0.0231)	(0.0076)***	(0.0071)*	(0.0291)	(0.0291)
%Δ	-0.4	-1.8	3.2	2.4	-5.3	-4.7	1.7	1.1	3.4	1.0	2.3	1.8	2.5	1.3	1.6	1.4
%Δ (95% CI – Clustered)	[-4.4, 3.8]	[-4.4, 0.9]	[0.7, 5.8]	[-0.1, 5.0]	[-13.9, 4.2]	[-10.6, 1.6]	[0.2, 3.3]	[-0.3, 2.6]	[0.7, 6.1]	[-1.4, 3.5]	[0.7, 4.0]	[0.2, 3.4]	[0.3, 4.6]	[-0.7, 3.3]	[0.1, 3.1]	[-0.1, 2.9]
%Δ (95% CI – EHW)	[-1.6, 0.8]	[-2.9, -0.6]	[-1.1, 7.6]	[-1.8, 6.8]	[-6.4, -4.1]	[-5.8, -3.6]	[-2.6, 6.2]	[-3.1, 5.6]	[2.0, 4.7]	[-0.2, 2.3]	[-2.2, 7.1]	[-2.7, 6.5]	[0.9, 4.0]	[-0.1, 2.7]	[-4.0, 7.6]	[-4.2, 7.4]
Observations	2,103,480		2,069,326		1,707,823		1,689,386		1,203,393		1,180,667		451,968		441,757	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.013	0.027	-0.006	-0.001	0.061	0.053	0.002	0.006	-0.023	-0.000	-0.011	-0.005	-0.020	-0.008	-0.012	-0.010
NIH × Post April 2008 × TA	-0.001	-0.009	0.025	0.019	-0.043	-0.035	0.015	0.010	0.028	0.009	0.020	0.015	0.022	0.011	0.015	0.013
SE (Clustered)	(0.0151)	(0.0104)	(0.0099)**	(0.0098)*	(0.0372)	(0.0231)	(0.0069)**	(0.0065)	(0.0114)**	(0.0110)	(0.0070)***	(0.0070)**	(0.0099)**	(0.0093)	(0.0070)**	(0.0069)*
SE (EHW)	(0.0054)	(0.0051)*	(0.0040)***	(0.0039)***	(0.0055)***	(0.0051)***	(0.0041)***	(0.0040)**	(0.0059)***	(0.0055)*	(0.0043)***	(0.0042)***	(0.0071)***	(0.0065)*	(0.0049)***	(0.0048)***
%Δ	-0.2	-1.0	2.7	2.0	-4.6	-3.8	1.6	1.1	2.9	1.0	2.1	1.6	2.4	1.1	1.6	1.4
%Δ (95% CI – Clustered)	[-3.3, 3.0]	[-3.2, 1.2]	[0.6, 4.7]	[-0.1, 4.0]	[-12.3, 3.1]	[-8.6, 1.0]	[0.1, 3.0]	[-0.3, 2.4]	[0.6, 5.3]	[-1.3, 3.3]	[0.7, 3.6]	[0.2, 3.1]	[0.3, 4.4]	[-0.8, 3.1]	[0.1, 3.0]	[-0.1, 2.8]
%Δ (95% CI – EHW)	[-1.3, 1.0]	[-2.1, 0.1]	[1.8, 3.5]	[1.2, 2.8]	[-5.7, -3.4]	[-4.8, -2.7]	[0.7, 2.4]	[0.2, 1.9]	[1.7, 4.1]	[-0.1, 2.1]	[1.2, 3.0]	[0.8, 2.5]	[0.9, 3.8]	[-0.2, 2.5]	[0.5, 2.6]	[0.3, 2.4]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	0.012	0.024	-0.005	-0.001	0.053	0.047	0.002	0.005	-0.020	-0.000	-0.009	-0.005	-0.018	-0.007	-0.010	-0.009
NIH × Post April 2008 × TA	-0.001	-0.008	0.022	0.016	-0.038	-0.031	0.013	0.009	0.024	0.008	0.018	0.014	0.020	0.009	0.013	0.011
SE (Clustered)	(0.0133)	(0.0091)	(0.0087)**	(0.0087)*	(0.0328)	(0.0204)	(0.0061)**	(0.0057)	(0.0101)**	(0.0097)	(0.0062)***	(0.0062)**	(0.0087)**	(0.0082)	(0.0062)**	(0.0061)*
SE (EHW)	(0.0047)	(0.0045)*	(0.0035)***	(0.0035)***	(0.0048)***	(0.0045)***	(0.0036)***	(0.0035)**	(0.0052)***	(0.0048)*	(0.0038)***	(0.0037)***	(0.0062)***	(0.0057)*	(0.0044)***	(0.0043)***
%Δ	-0.1	-0.8	2.2	1.7	-3.7	-3.1	1.3	0.9	2.5	0.8	1.8	1.4	2.0	1.0	1.3	1.1
%Δ (95% CI – Clustered)	[-2.7, 2.5]	[-2.6, 1.0]	[0.5, 4.0]	[-0.1, 3.4]	[-9.7, 2.7]	[-6.9, 0.9]	[0.1, 2.5]	[-0.2, 2.0]	[0.5, 4.5]	[-1.1, 2.8]	[0.5, 3.0]	[0.1, 2.6]	[0.3, 3.7]	[-0.7, 2.6]	[0.1, 2.5]	[-0.1, 2.3]
%Δ (95% CI – EHW)	[-1.1, 0.8]	[-1.7, 0.1]	[1.5, 2.9]	[1.0, 2.3]	[-4.6, -2.8]	[-3.9, -2.2]	[0.6, 2.0]	[0.2, 1.6]	[1.4, 3.5]	[-0.1, 1.8]	[1.0, 2.5]	[0.6, 2.1]	[0.7, 3.2]	[-0.2, 2.1]	[0.5, 2.2]	[0.3, 2.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.948]				[0.948]				[0.949]				[0.950]		
Poisson																
NIH × Post April 2008	0.057	0.118	0.011	0.038	0.096	0.106	0.009	0.030	-0.039	0.014	-0.014	0.004	-0.029	-0.009	-0.008	-0.004
NIH × Post April 2008 × TA	-0.017	-0.052	0.050	0.025	-0.048	-0.053	0.041	0.020	0.048	0.013	0.034	0.021	0.041	0.021	0.018	0.013
SE (Clustered)	(0.0380)	(0.0214)**	(0.0178)***	(0.0133)*	(0.0535)	(0.0356)	(0.0170)**	(0.0121)*	(0.0181)***	(0.0104)	(0.0127)***	(0.0099)**	(0.0134)***	(0.0106)**	(0.0099)*	(0.0095)
SE (EHW)	(0.0039)***	(0.0038)***	(0.0132)***	(0.0132)*	(0.0038)***	(0.0037)***	(0.0135)***	(0.0135)	(0.0042)***	(0.0039)***	(0.0142)**	(0.0142)	(0.0049)***	(0.0045)***	(0.0179)	(0.0179)
%Δ	-1.7	-5.1	5.1	2.6	-4.7	-5.1	4.2	2.0	5.0	1.3	3.4	2.1	4.1	2.1	1.8	1.3
%Δ (95% CI – Clustered)	[-8.7, 5.9]	[-9.0, -1.0]	[1.5, 8.9]	[-0.1, 5.3]	[-14.2, 5.8]	[-11.5, 1.7]	[0.8, 7.7]	[-0.3, 4.5]	[1.3, 8.8]	[-0.8, 3.4]	[0.9, 6.0]	[0.2, 4.1]	[1.4, 6.9]	[0.0, 4.3]	[-0.2, 3.8]	[-0.6, 3.2]
%Δ (95% CI – EHW)	[-2.4, -0.9]	[-5.8, -4.4]	[2.5, 7.9]	[-0.1, 5.3]	[-5.4, -4.0]	[-5.8, -4.4]	[1.5, 7.0]	[-0.6, 4.8]	[4.1, 5.8]	[0.5, 2.1]	[0.6, 6.3]	[-0.7, 5.0]	[3.1, 5.1]	[1.2, 3.0]	[-1.7, 5.4]	[-2.2, 4.9]
Observations	6,108,951		6,051,701		4,918,431		4,888,986		3,067,679		3,034,706		1,288,882		1,271,771	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.024	0.066	-0.002	0.019	0.067	0.074	0.002	0.021	-0.038	0.006	-0.016	-0.001	-0.028	-0.009	-0.008	-0.005
NIH × Post April 2008 × TA	-0.002	-0.023	0.044	0.024	-0.032	-0.033	0.037	0.018	0.043	0.014	0.031	0.020	0.037	0.019	0.017	0.012
SE (Clustered)	(0.0241)	(0.0127)*	(0.0152)***	(0.0112)**	(0.0383)	(0.0229)	(0.0148)**	(0.0102)*	(0.0147)***	(0.0092)	(0.0115)***	(0.0090)**	(0.0123)***	(0.0097)*	(0.0091)*	(0.0086)
SE (EHW)	(0.0033)	(0.0032)***	(0.0028)***	(0.0027)***	(0.0034)***	(0.0032)***	(0.0028)***	(0.0028)***	(0.0037)***	(0.0034)***	(0.0030)***	(0.0029)***	(0.0045)***	(0.0041)***	(0.0036)***	(0.0035)***
%Δ	-0.2	-2.4	4.6	2.5	-3.4	-3.4	3.9	1.9	4.5	1.5	3.2	2.1	3.9	2.0	1.7	1.2
%Δ (95% CI – Clustered)	[-5.2, 4.8]	[-5.1, 0.2]	[1.5, 7.8]	[0.2, 4.8]	[-11.3, 4.5]	[-8.2, 1.3]	[0.8, 6.9]	[-0.2, 4.0]	[1.4, 7.5]	[-0.4, 3.4]	[0.9, 5.6]	[0.2, 3.9]	[1.4, 6.4]	[-0.1, 4.0]	[-0.1, 3.6]	[-0.5, 3.0]
%Δ (95% CI – EHW)	[-0.9, 0.5]	[-3.1, -1.8]	[4.1, 5.2]	[1.9, 3.1]	[-4.1, -2.7]	[-4.1, -2.8]	[3.3, 4.5]	[1.3, 2.4]	[3.7, 5.2]	[0.8, 2.2]	[2.6, 3.8]	[1.5, 2.7]	[3.0, 4.8]	[1.1, 2.8]	[1.0, 2.5]	[0.5, 2.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	0.022	0.058	-0.002	0.017	0.059	0.065	0.002	0.018	-0.034	0.006	-0.014	-0.001	-0.025	-0.008	-0.007	-0.004
NIH × Post April 2008 × TA	-0.002	-0.020	0.039	0.021	-0.028	-0.029	0.032	0.016	0.037	0.012	0.027	0.017	0.033	0.016	0.015	0.010
SE (Clustered)	(0.0213)	(0.0112)*	(0.0134)***	(0.0099)**	(0.0338)	(0.0202)	(0.0131)**	(0.0090)*	(0.0130)***	(0.0081)	(0.0101)***	(0.0080)**	(0.0108)***	(0.0086)*	(0.0081)*	(0.0076)
SE (EHW)	(0.0029)	(0.0028)***	(0.0025)***	(0.0024)***	(0.0030)***	(0.0028)***	(0.0025)***	(0.0024)***	(0.0032)***	(0.0030)***	(0.0026)***	(0.0026)***	(0.0039)***	(0.0036)***	(0.0032)***	(0.0031)***
%Δ	-0.2	-2.0	4.0	2.1	-2.8	-2.8	3.3	1.6	3.8	1.2	2.7	1.8	3.3	1.6	1.5	1.0
%Δ (95% CI – Clustered)	[-4.3, 4.1]	[-4.1, 0.2]	[1.3, 6.7]	[0.2, 4.1]	[-9.0, 3.9]	[-6.6, 1.1]	[0.7, 6.0]	[-0.2, 3.4]	[1.2, 6.5]	[-0.3, 2.9]	[0.7, 4.8]	[0.2, 3.4]	[1.1, 5.5]	[-0.0, 3.4]	[-0.1, 3.1]	[-0.5, 2.6]
%Δ (95% CI – EHW)	[-0.8, 0.4]	[-2.5, -1.5]	[3.5, 4.5]	[1.6, 2.6]	[-3.3, -2.2]	[-3.4, -2.3]	[2.8, 3.8]	[1.1, 2.1]	[3.2, 4.5]	[0.7, 1.8]	[2.2, 3.3]	[1.2, 2.3]	[2.5, 4.1]	[0.9, 2.4]	[0.8, 2.1]	[0.4, 1.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations – i.e. the number of citations an article ever receives. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

I Additional Results for Publication Pattern Outcomes

Table I.1.1. Toll Access Indicator (DOAJ)

	MEDLINE		***Journal***		***Full PRCA***		***1-to-1 PRCA***	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Jan 2007 - Dec 2009	[0.959]		[0.959]		[0.960]		[0.960]	
Poisson								
NIH × Post April 2008	0.003	0.005	0.006	0.008	-0.003	-0.001	0.006	0.006
SE (Clustered)	(0.0070)	(0.0054)	(0.0064)	(0.0052)	(0.0018)	(0.0015)	(0.0016)***	(0.0014)***
SE (EHW)	(0.0010)***	(0.0009)***	(0.0010)***	(0.0009)***	(0.0010)***	(0.0010)	(0.0014)***	(0.0014)***
%Δ	0.3	0.5	0.6	0.8	-0.3	-0.1	0.6	0.6
%Δ (95% CI – Clustered)	[-1.1, 1.7]	[-0.6, 1.6]	[-0.7, 1.9]	[-0.2, 1.8]	[-0.6, 0.1]	[-0.4, 0.2]	[0.3, 0.9]	[0.3, 0.9]
%Δ (95% CI – EHW)	[0.1, 0.5]	[0.3, 0.7]	[0.4, 0.8]	[0.6, 1.0]	[-0.5, -0.1]	[-0.3, 0.1]	[0.3, 0.9]	[0.4, 0.9]
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels								
NIH × Post April 2008	0.003	0.004	0.006	0.007	-0.003	-0.001	0.006	0.006
SE (Clustered)	(0.0064)	(0.0049)	(0.0060)	(0.0048)	(0.0017)	(0.0014)	(0.0015)***	(0.0014)***
SE (EHW)	(0.0009)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0010)***	(0.0010)	(0.0014)***	(0.0013)***
%Δ	0.3	0.4	0.6	0.7	-0.3	-0.1	0.6	0.6
%Δ (95% CI – Clustered)	[-1.0, 1.6]	[-0.6, 1.4]	[-0.6, 1.8]	[-0.3, 1.7]	[-0.6, 0.1]	[-0.4, 0.2]	[0.3, 0.9]	[0.3, 0.9]
%Δ (95% CI – EHW)	[0.1, 0.5]	[0.2, 0.6]	[0.4, 0.8]	[0.5, 0.9]	[-0.5, -0.1]	[-0.3, 0.1]	[0.3, 0.9]	[0.3, 0.8]
Observations	2,103,480		1,707,823		1,203,393		451,968	
Panel B: Jan 2003 - Dec 2011	[0.971]		[0.971]		[0.971]		[0.971]	
Poisson								
NIH × Post April 2008	0.006	0.012	0.003	0.010	0.007	0.010	0.017	0.016
SE (Clustered)	(0.0159)	(0.0140)	(0.0099)	(0.0095)	(0.0040)*	(0.0049)**	(0.0014)***	(0.0015)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0007)***	(0.0006)***	(0.0009)***	(0.0009)***
%Δ	0.6	1.2	0.3	1.0	0.7	1.1	1.7	1.7
%Δ (95% CI – Clustered)	[-2.5, 3.8]	[-1.5, 4.0]	[-1.6, 2.3]	[-0.9, 2.9]	[-0.0, 1.5]	[0.1, 2.0]	[1.4, 2.0]	[1.4, 1.9]
%Δ (95% CI – EHW)	[0.5, 0.7]	[1.1, 1.3]	[0.2, 0.4]	[0.8, 1.1]	[0.6, 0.9]	[0.9, 1.2]	[1.5, 1.8]	[1.5, 1.8]
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels								
NIH × Post April 2008	0.005	0.009	0.003	0.008	0.007	0.009	0.015	0.015
SE (Clustered)	(0.0143)	(0.0124)	(0.0092)	(0.0087)	(0.0035)*	(0.0044)**	(0.0013)***	(0.0013)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0008)***	(0.0008)***
%Δ	0.5	1.0	0.3	0.8	0.7	0.9	1.5	1.5
%Δ (95% CI – Clustered)	[-2.4, 3.4]	[-1.6, 3.5]	[-1.5, 2.2]	[-1.0, 2.5]	[-0.0, 1.4]	[0.0, 1.8]	[1.3, 1.8]	[1.2, 1.8]
%Δ (95% CI – EHW)	[0.4, 0.6]	[0.8, 1.1]	[0.2, 0.4]	[0.7, 0.9]	[0.6, 0.8]	[0.8, 1.0]	[1.4, 1.7]	[1.3, 1.7]
Observations	6,108,951		4,918,431		3,067,679		1,288,882	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls		Yes		Yes		Yes		Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table I.1.2. Toll Access Indicator (PMC-OAS)

	MEDLINE		***Journal***		***Full PRCA***		***1-to-1 PRCA***	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Jan 2007 - Dec 2009	[0.951]		[0.951]		[0.951]		[0.951]	
Poisson								
NIH × Post April 2008	-0.000	0.001	0.000	0.003	-0.008	-0.006	0.005	0.005
SE (Clustered)	(0.0098)	(0.0078)	(0.0083)	(0.0069)	(0.0016)***	(0.0015)***	(0.0015)***	(0.0015)***
SE (EHW)	(0.0010)	(0.0010)	(0.0010)	(0.0010)***	(0.0010)***	(0.0010)***	(0.0014)***	(0.0013)***
%Δ	-0.0	0.1	0.0	0.3	-0.8	-0.6	0.5	0.5
%Δ (95% CI – Clustered)	[-1.9, 1.9]	[-1.4, 1.7]	[-1.6, 1.7]	[-1.1, 1.6]	[-1.1, -0.5]	[-0.9, -0.3]	[0.2, 0.8]	[0.2, 0.8]
%Δ (95% CI – EHW)	[-0.2, 0.2]	[-0.1, 0.3]	[-0.2, 0.2]	[0.1, 0.5]	[-1.0, -0.6]	[-0.8, -0.4]	[0.2, 0.8]	[0.2, 0.8]
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels								
NIH × Post April 2008	0.000	0.001	0.001	0.003	-0.007	-0.005	0.005	0.005
SE (Clustered)	(0.0090)	(0.0071)	(0.0078)	(0.0065)	(0.0015)***	(0.0014)***	(0.0014)***	(0.0014)***
SE (EHW)	(0.0009)	(0.0009)	(0.0009)	(0.0009)***	(0.0010)***	(0.0010)***	(0.0013)***	(0.0013)***
%Δ	0.0	0.1	0.1	0.3	-0.7	-0.6	0.5	0.5
%Δ (95% CI – Clustered)	[-1.8, 1.9]	[-1.4, 1.6]	[-1.5, 1.7]	[-1.1, 1.6]	[-1.0, -0.4]	[-0.8, -0.3]	[0.2, 0.8]	[0.2, 0.8]
%Δ (95% CI – EHW)	[-0.2, 0.2]	[-0.1, 0.3]	[-0.1, 0.3]	[0.1, 0.5]	[-0.9, -0.5]	[-0.8, -0.4]	[0.2, 0.7]	[0.2, 0.8]
Observations	2,103,480		1,707,823		1,203,393		451,968	
Panel B: Jan 2003 - Dec 2011	[0.967]		[0.967]		[0.967]		[0.968]	
Poisson								
NIH × Post April 2008	-0.003	0.002	-0.009	-0.002	-0.002	0.002	0.012	0.013
SE (Clustered)	(0.0208)	(0.0180)	(0.0108)	(0.0101)	(0.0048)	(0.0058)	(0.0016)***	(0.0016)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0007)**	(0.0006)***	(0.0009)***	(0.0008)***
%Δ	-0.3	0.2	-0.9	-0.2	-0.2	0.2	1.2	1.3
%Δ (95% CI – Clustered)	[-4.3, 3.8]	[-3.3, 3.8]	[-2.9, 1.3]	[-2.2, 1.8]	[-1.1, 0.8]	[-0.9, 1.3]	[0.9, 1.5]	[1.0, 1.6]
%Δ (95% CI – EHW)	[-0.5, -0.2]	[0.1, 0.3]	[-1.0, -0.7]	[-0.3, -0.1]	[-0.3, -0.0]	[0.1, 0.3]	[1.0, 1.4]	[1.1, 1.5]
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels								
NIH × Post April 2008	-0.002	0.002	-0.007	-0.002	-0.001	0.002	0.011	0.012
SE (Clustered)	(0.0189)	(0.0161)	(0.0100)	(0.0093)	(0.0043)	(0.0053)	(0.0014)***	(0.0014)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)	(0.0006)***	(0.0008)***	(0.0008)***
%Δ	-0.2	0.2	-0.7	-0.2	-0.1	0.2	1.1	1.2
%Δ (95% CI – Clustered)	[-4.1, 3.6]	[-3.1, 3.4]	[-2.8, 1.3]	[-2.1, 1.7]	[-1.0, 0.8]	[-0.9, 1.3]	[0.9, 1.4]	[0.9, 1.5]
%Δ (95% CI – EHW)	[-0.4, -0.1]	[0.0, 0.3]	[-0.9, -0.6]	[-0.3, -0.1]	[-0.2, 0.0]	[0.1, 0.3]	[1.0, 1.3]	[1.1, 1.4]
Observations	6,108,951		4,918,431		3,067,679		1,288,882	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls		Yes		Yes		Yes		Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

J Results for Citation Outcomes from Researchers at Commercial Enterprises

Table J.1.1. Count of 2-Year Cites from Researchers at a Commercial Enterprise (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.145]				[0.145]				[0.145]				[0.145]		
Poisson																
NIH × Post April 2008	-0.028	-0.055	-0.038	-0.052	-0.002	-0.044	-0.033	-0.049	-0.032	-0.029	-0.031	-0.033	-0.019	-0.014	-0.020	-0.020
SE (Clustered)	(0.0238)	(0.0227)**	(0.0214)*	(0.0215)**	(0.0246)	(0.0228)*	(0.0215)	(0.0215)**	(0.0240)	(0.0250)	(0.0217)	(0.0223)	(0.0258)	(0.0259)	(0.0233)	(0.0246)
SE (EHW)	(0.0203)	(0.0202)***	(0.0124)***	(0.0124)***	(0.0204)	(0.0203)**	(0.0124)***	(0.0124)***	(0.0215)	(0.0217)	(0.0130)**	(0.0130)**	(0.0278)	(0.0272)	(0.0167)	(0.0167)
%Δ	-2.8	-5.4	-3.7	-5.0	-0.2	-4.3	-3.3	-4.8	-3.2	-2.9	-3.0	-3.3	-1.9	-1.4	-2.0	-2.0
%Δ (95% CI – Clustered)	[-7.2, 1.9]	[-9.5, -1.1]	[-7.7, 0.4]	[-9.0, -1.0]	[-4.9, 4.7]	[-8.5, 0.1]	[-7.3, 0.9]	[-8.7, -0.7]	[-7.6, 1.5]	[-7.5, 2.0]	[-7.0, 1.2]	[-7.4, 1.1]	[-6.7, 3.2]	[-6.3, 3.7]	[-6.3, 2.6]	[-6.6, 2.9]
%Δ (95% CI – EHW)	[-6.6, 1.2]	[-9.1, -1.6]	[-6.0, -1.4]	[-7.3, -2.7]	[-4.1, 3.9]	[-8.0, -0.4]	[-5.6, -0.9]	[-7.1, -2.4]	[-7.2, 1.0]	[-6.9, 1.4]	[-5.4, -0.5]	[-5.7, -0.8]	[-7.1, 3.6]	[-6.5, 4.0]	[-5.1, 1.3]	[-5.1, 1.3]
Observations	2,103,480		1,834,952		1,707,823		1,596,886		1,203,393		1,067,550		451,968		406,011	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.006	-0.007	-0.005	-0.006	-0.003	-0.006	-0.005	-0.006	-0.005	-0.007	-0.004	-0.005	-0.003	-0.004	-0.003	-0.004
SE (Clustered)	(0.0029)*	(0.0028)**	(0.0028)**	(0.0027)**	(0.0030)	(0.0028)**	(0.0028)*	(0.0027)**	(0.0030)*	(0.0028)**	(0.0028)	(0.0027)**	(0.0034)	(0.0033)	(0.0032)	(0.0031)
SE (EHW)	(0.0026)**	(0.0025)***	(0.0025)**	(0.0025)***	(0.0026)	(0.0026)**	(0.0026)**	(0.0025)**	(0.0028)*	(0.0027)**	(0.0027)*	(0.0026)**	(0.0037)	(0.0036)	(0.0036)	(0.0035)
%Δ	-3.8	-4.9	-3.8	-4.5	-2.2	-4.1	-3.6	-4.3	-3.5	-4.6	-3.1	-3.8	-2.1	-2.7	-2.0	-2.7
%Δ (95% CI – Clustered)	[-7.7, 0.1]	[-8.7, -1.2]	[-7.5, -0.0]	[-8.1, -0.8]	[-6.2, 1.8]	[-7.9, -0.3]	[-7.4, 0.2]	[-8.0, -0.7]	[-7.5, 0.5]	[-8.4, -0.8]	[-6.8, 0.7]	[-7.4, -0.1]	[-6.7, 2.6]	[-7.2, 1.8]	[-6.4, 2.3]	[-7.0, 1.5]
%Δ (95% CI – EHW)	[-7.3, -0.3]	[-8.3, -1.5]	[-7.2, -0.4]	[-7.8, -1.1]	[-5.7, 1.4]	[-7.5, -0.6]	[-7.1, -0.1]	[-7.7, -0.9]	[-7.2, 0.3]	[-8.2, -1.0]	[-6.7, 0.5]	[-7.3, -0.2]	[-7.1, 3.0]	[-7.5, 2.1]	[-7.0, 2.9]	[-7.5, 2.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.005	-0.006	-0.005	-0.006	-0.003	-0.005	-0.005	-0.006	-0.005	-0.006	-0.004	-0.005	-0.004	-0.005	-0.004	-0.005
SE (Clustered)	(0.0016)***	(0.0016)***	(0.0015)***	(0.0015)***	(0.0017)*	(0.0016)***	(0.0016)***	(0.0015)***	(0.0017)***	(0.0016)***	(0.0016)***	(0.0015)***	(0.0020)**	(0.0019)**	(0.0019)**	(0.0018)**
SE (EHW)	(0.0014)***	(0.0014)***	(0.0014)***	(0.0014)***	(0.0015)**	(0.0014)***	(0.0014)***	(0.0014)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0020)*	(0.0019)**	(0.0020)**	(0.0019)**
%Δ	-0.5	-0.6	-0.5	-0.6	-0.3	-0.5	-0.5	-0.6	-0.5	-0.6	-0.4	-0.5	-0.4	-0.5	-0.4	-0.5
%Δ (95% CI – Clustered)	[-0.8, -0.2]	[-0.9, -0.3]	[-0.8, -0.2]	[-0.9, -0.3]	[-0.7, 0.0]	[-0.8, -0.2]	[-0.8, -0.2]	[-0.8, -0.3]	[-0.8, -0.1]	[-0.9, -0.2]	[-0.8, -0.1]	[-0.8, -0.2]	[-0.8, -0.0]	[-0.8, -0.1]	[-0.8, -0.0]	[-0.8, -0.1]
%Δ (95% CI – EHW)	[-0.8, -0.2]	[-0.9, -0.3]	[-0.8, -0.2]	[-0.8, -0.3]	[-0.6, -0.0]	[-0.8, -0.2]	[-0.8, -0.2]	[-0.8, -0.3]	[-0.8, -0.2]	[-0.8, -0.3]	[-0.7, -0.2]	[-0.8, -0.2]	[-0.8, 0.0]	[-0.8, -0.1]	[-0.8, -0.0]	[-0.8, -0.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.152]				[0.152]				[0.153]				[0.152]		
Poisson																
NIH × Post April 2008	-0.015	-0.075	-0.058	-0.102	0.033	-0.051	-0.049	-0.096	-0.019	-0.078	-0.069	-0.100	0.026	-0.038	-0.025	-0.065
SE (Clustered)	(0.0293)	(0.0258)***	(0.0213)***	(0.0171)***	(0.0292)	(0.0258)**	(0.0212)**	(0.0170)***	(0.0289)	(0.0259)***	(0.0190)***	(0.0177)***	(0.0292)	(0.0282)	(0.0176)	(0.0182)***
SE (EHW)	(0.0120)	(0.0121)***	(0.0074)***	(0.0074)***	(0.0121)***	(0.0121)***	(0.0074)***	(0.0074)***	(0.0131)	(0.0140)***	(0.0079)***	(0.0079)***	(0.0166)	(0.0168)**	(0.0099)**	(0.0099)***
%Δ	-1.5	-7.2	-5.7	-9.7	3.3	-4.9	-4.8	-9.1	-1.9	-7.5	-6.7	-9.6	2.6	-3.7	-2.5	-6.3
%Δ (95% CI – Clustered)	[-7.0, 4.4]	[-11.8, -2.4]	[-9.5, -1.6]	[-12.6, -6.6]	[-2.4, 9.4]	[-9.6, -0.0]	[-8.6, -0.7]	[-12.1, -6.0]	[-7.3, 3.8]	[-12.1, -2.7]	[-10.1, -3.1]	[-12.6, -6.4]	[-3.1, 8.7]	[-8.9, 1.8]	[-5.8, 0.9]	[-9.5, -2.9]
%Δ (95% CI – EHW)	[-3.8, 0.9]	[-9.4, -5.0]	[-7.0, -4.3]	[-11.0, -8.3]	[0.9, 5.8]	[-7.2, -2.7]	[-6.1, -3.4]	[-10.4, -7.8]	[-4.4, 0.6]	[-10.0, -5.0]	[-8.1, -5.2]	[-10.9, -8.2]	[-0.7, 6.0]	[-6.8, -0.5]	[-4.4, -0.6]	[-8.1, -4.4]
Observations	6,108,951		5,599,997		4,918,431		4,704,155		3,067,679		2,832,068		1,288,882		1,198,764	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.017	-0.021	-0.017	-0.019	-0.010	-0.017	-0.014	-0.018	-0.011	-0.017	-0.013	-0.017	0.001	-0.008	-0.004	-0.011
SE (Clustered)	(0.0035)***	(0.0032)***	(0.0030)***	(0.0027)***	(0.0036)***	(0.0032)***	(0.0030)***	(0.0027)***	(0.0036)***	(0.0031)***	(0.0027)***	(0.0024)***	(0.0038)	(0.0033)**	(0.0026)*	(0.0024)***
SE (EHW)	(0.0015)***	(0.0014)***	(0.0015)***	(0.0014)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0014)***	(0.0016)***	(0.0016)***	(0.0016)***	(0.0015)***	(0.0022)	(0.0021)***	(0.0021)**	(0.0020)***
%Δ	-11.2	-13.9	-11.1	-12.8	-6.6	-11.1	-9.4	-11.8	-7.0	-10.9	-8.8	-10.9	0.5	-5.4	-2.8	-7.1
%Δ (95% CI – Clustered)	[-15.7, -6.6]	[-18.0, -9.7]	[-15.1, -7.2]	[-16.4, -9.3]	[-11.3, -1.9]	[-15.3, -7.0]	[-13.3, -5.5]	[-15.2, -8.3]	[-11.7, -2.3]	[-14.8, -6.9]	[-12.3, -5.3]	[-13.9, -7.8]	[-4.4, 5.4]	[-9.7, -1.1]	[-6.1, 0.5]	[-10.2, -4.1]
%Δ (95% CI – EHW)	[-13.1, -9.3]	[-15.7, -12.0]	[-13.0, -9.3]	[-14.7, -11.0]	[-8.5, -4.7]	[-13.0, -9.3]	[-11.3, -7.5]	[-13.6, -9.9]	[-9.1, -4.9]	[-12.9, -8.9]	[-10.8, -6.7]	[-12.8, -8.9]	[-2.3, 3.3]	[-8.1, -2.7]	[-5.5, -0.1]	[-9.7, -4.5]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.013	-0.015	-0.013	-0.015	-0.008	-0.013	-0.011	-0.013	-0.009	-0.012	-0.010	-0.012	-0.002	-0.007	-0.004	-0.008
SE (Clustered)	(0.0020)***	(0.0018)***	(0.0017)***	(0.0016)***	(0.0021)***	(0.0018)***	(0.0017)***	(0.0015)***	(0.0021)***	(0.0017)***	(0.0015)***	(0.0014)***	(0.0021)	(0.0018)***	(0.0015)***	(0.0014)***
SE (EHW)	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0012)	(0.0011)***	(0.0011)***	(0.0011)***
%Δ	-1.3	-1.5	-1.3	-1.4	-0.8	-1.3	-1.1	-1.3	-0.9	-1.2	-1.0	-1.2	-0.2	-0.7	-0.4	-0.8
%Δ (95% CI – Clustered)	[-1.7, -0.9]	[-1.9, -1.2]	[-1.6, -0.9]	[-1.7, -1.1]	[-1.2, -0.4]	[-1.6, -0.9]	[-1.4, -0.8]	[-1.6, -1.0]	[-1.3, -0.5]	[-1.5, -0.9]	[-1.3, -0.7]	[-1.5, -0.9]	[-0.6, 0.3]	[-1.0, -0.3]	[-0.7, -0.1]	[-1.1, -0.5]
%Δ (95% CI – EHW)	[-1.5, -1.1]	[-1.7, -1.4]	[-1.4, -1.1]	[-1.6, -1.3]	[-1.0, -0.7]	[-1.4, -1.1]	[-1.3, -0.9]	[-1.5, -1.2]	[-1.1, -0.7]	[-1.4, -1.0]	[-1.2, -0.9]	[-1.4, -1.0]	[-0.4, 0.1]	[-0.9, -0.4]	[-0.7, -0.2]	[-1.0, -0.6]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.1.2. Count of Lifetime Cites from Researchers at a Commercial Enterprise (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.496]				[0.496]				[0.499]				[0.497]		
Poisson																
NIH × Post April 2008	0.011	-0.011	-0.001	-0.014	0.034	-0.003	0.001	-0.014	0.001	0.005	-0.002	-0.005	0.009	0.011	0.005	0.003
SE (Clustered)	(0.0210)	(0.0199)	(0.0192)	(0.0185)	(0.0219)	(0.0201)	(0.0195)	(0.0186)	(0.0212)	(0.0212)	(0.0197)	(0.0189)	(0.0229)	(0.0223)	(0.0210)	(0.0206)
SE (EHW)	(0.0171)	(0.0169)	(0.0071)	(0.0071)*	(0.0172)**	(0.0170)	(0.0071)	(0.0071)*	(0.0181)	(0.0179)	(0.0075)	(0.0075)	(0.0235)	(0.0227)	(0.0096)	(0.0097)
%Δ	1.2	-1.1	-0.1	-1.4	3.5	-0.3	0.1	-1.4	0.1	0.5	-0.2	-0.5	0.9	1.1	0.5	0.3
%Δ (95% CI – Clustered)	[-2.9, 5.4]	[-4.9, 2.8]	[-3.8, 3.8]	[-4.9, 2.3]	[-0.9, 8.0]	[-4.2, 3.7]	[-3.7, 4.0]	[-4.9, 2.3]	[-4.0, 4.4]	[-3.6, 4.7]	[-4.0, 3.7]	[-4.1, 3.3]	[-3.6, 5.5]	[-3.2, 5.6]	[-3.6, 4.7]	[-3.7, 4.4]
%Δ (95% CI – EHW)	[-2.2, 4.6]	[-4.3, 2.2]	[-1.5, 1.3]	[-2.7, 0.0]	[0.1, 7.0]	[-3.6, 3.0]	[-1.3, 1.5]	[-2.7, 0.0]	[-3.4, 3.7]	[-3.0, 4.1]	[-1.7, 1.2]	[-1.9, 1.0]	[-3.7, 5.6]	[-3.3, 5.7]	[-1.4, 2.4]	[-1.6, 2.2]
Observations	2,103,480		1,951,967		1,707,823		1,641,950		1,203,393		1,121,071		451,968		422,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.072	-0.076	-0.071	-0.073	-0.053	-0.059	-0.056	-0.058	-0.053	-0.056	-0.051	-0.053	-0.016	-0.018	-0.015	-0.018
SE (Clustered)	(0.0097)***	(0.0094)***	(0.0097)***	(0.0095)***	(0.0100)***	(0.0095)***	(0.0100)***	(0.0097)***	(0.0099)***	(0.0093)***	(0.0099)***	(0.0093)***	(0.0107)	(0.0101)*	(0.0106)	(0.0100)*
SE (EHW)	(0.0067)***	(0.0065)***	(0.0066)***	(0.0064)***	(0.0069)***	(0.0067)***	(0.0067)***	(0.0065)***	(0.0072)***	(0.0070)***	(0.0070)***	(0.0068)***	(0.0097)	(0.0092)*	(0.0094)	(0.0090)*
%Δ	-14.6	-15.3	-14.4	-14.8	-10.6	-12.0	-11.2	-11.8	-10.6	-11.3	-10.2	-10.6	-3.1	-3.6	-3.0	-3.5
%Δ (95% CI – Clustered)	[-18.4, -10.7]	[-19.0, -11.6]	[-18.3, -10.6]	[-18.6, -11.0]	[-14.6, -6.6]	[-15.8, -8.2]	[-15.2, -7.3]	[-15.6, -7.9]	[-14.5, -6.7]	[-14.9, -7.6]	[-14.1, -6.3]	[-14.2, -6.9]	[-7.4, 1.1]	[-7.6, 0.4]	[-7.2, 1.1]	[-7.5, 0.4]
%Δ (95% CI – EHW)	[-17.2, -11.9]	[-17.9, -12.7]	[-17.0, -11.8]	[-17.3, -12.3]	[-13.3, -7.9]	[-14.6, -9.4]	[-13.9, -8.6]	[-14.3, -9.2]	[-13.4, -7.8]	[-14.0, -8.5]	[-12.9, -7.5]	[-13.2, -7.9]	[-7.0, 0.7]	[-7.2, 0.1]	[-6.8, 0.7]	[-7.1, 0.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.037	-0.038	-0.037	-0.038	-0.028	-0.031	-0.030	-0.031	-0.029	-0.030	-0.029	-0.029	-0.016	-0.017	-0.015	-0.016
SE (Clustered)	(0.0033)***	(0.0031)***	(0.0031)***	(0.0030)***	(0.0035)***	(0.0032)***	(0.0031)***	(0.0030)***	(0.0034)***	(0.0031)***	(0.0031)***	(0.0029)***	(0.0039)***	(0.0036)***	(0.0036)***	(0.0034)***
SE (EHW)	(0.0024)***	(0.0023)***	(0.0023)***	(0.0023)***	(0.0025)***	(0.0024)***	(0.0024)***	(0.0023)***	(0.0026)***	(0.0025)***	(0.0025)***	(0.0024)***	(0.0034)***	(0.0032)***	(0.0033)***	(0.0031)***
%Δ	-3.6	-3.8	-3.6	-3.7	-2.7	-3.1	-2.9	-3.1	-2.9	-3.0	-2.8	-2.9	-1.6	-1.6	-1.5	-1.6
%Δ (95% CI – Clustered)	[-4.2, -3.0]	[-4.4, -3.2]	[-4.2, -3.0]	[-4.3, -3.2]	[-3.4, -2.1]	[-3.6, -2.4]	[-3.5, -2.4]	[-3.6, -2.5]	[-3.5, -2.3]	[-3.6, -2.4]	[-3.4, -2.2]	[-3.4, -2.3]	[-2.3, -0.8]	[-2.3, -0.9]	[-2.2, -0.8]	[-2.3, -1.0]
%Δ (95% CI – EHW)	[-4.1, -3.2]	[-4.2, -3.3]	[-4.0, -3.2]	[-4.1, -3.3]	[-3.2, -2.2]	[-3.5, -2.6]	[-3.4, -2.5]	[-3.5, -2.6]	[-3.4, -2.4]	[-3.4, -2.5]	[-3.3, -2.4]	[-3.3, -2.4]	[-2.2, -0.9]	[-2.3, -1.0]	[-2.1, -0.9]	[-2.2, -1.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.640]				[0.640]				[0.643]				[0.642]		
Poisson																
NIH × Post April 2008	0.016	-0.033	-0.030	-0.061	0.059	-0.566	-0.025	-0.060	0.016	-0.044	-0.045	-0.074	0.025	-0.036	-0.026	-0.061
SE (Clustered)	(0.0274)	(0.0242)	(0.0197)	(0.0149)***	(0.0274)**	(3.0e+04)	(0.0199)	(0.0149)***	(0.0271)	(0.0243)*	(0.0184)**	(0.0155)***	(0.0282)	(0.0268)	(0.0160)	(0.0160)***
SE (EHW)	(0.0105)	(0.0104)***	(0.0045)***	(0.0045)***	(0.0106)***	(1.3e+03)	(0.0045)***	(0.0045)***	(0.0115)	(0.0124)***	(0.0048)***	(0.0048)***	(0.0146)*	(0.0148)**	(0.0061)***	(0.0061)***
%Δ	1.6	-3.2	-3.0	-5.9	6.1	-43.2	-2.5	-5.8	1.6	-4.3	-4.4	-7.1	2.5	-3.5	-2.5	-5.9
%Δ (95% CI – Clustered)	[-3.7, 7.2]	[-7.7, 1.5]	[-6.6, 0.9]	[-8.6, -3.2]	[0.6, 12.0]	[-100.0, .]	[-6.2, 1.4]	[-8.5, -3.0]	[-3.6, 7.2]	[-8.8, 0.4]	[-7.8, -0.9]	[-9.9, -4.2]	[-3.0, 8.4]	[-8.4, 1.7]	[-5.6, 0.6]	[-8.8, -2.9]
%Δ (95% CI – EHW)	[-0.5, 3.7]	[-5.2, -1.2]	[-3.8, -2.1]	[-6.8, -5.1]	[3.9, 8.3]	[-100.0, .]	[-3.3, -1.6]	[-6.6, -5.0]	[-0.6, 3.9]	[-6.6, -2.0]	[-5.3, -3.5]	[-8.0, -6.2]	[-0.3, 5.5]	[-6.3, -0.7]	[-3.7, -1.4]	[-7.0, -4.8]
Observations	6,108,951		5,799,669		4,918,431		4,770,869		3,067,679		2,923,572		1,288,882		1,229,717	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.204	-0.209	-0.194	-0.196	-0.150	-0.165	-0.154	-0.160	-0.122	-0.133	-0.124	-0.127	-0.035	-0.059	-0.045	-0.062
SE (Clustered)	(0.0181)***	(0.0174)***	(0.0178)***	(0.0170)***	(0.0179)***	(0.0169)***	(0.0176)***	(0.0167)***	(0.0167)***	(0.0154)***	(0.0160)***	(0.0146)***	(0.0152)**	(0.0142)***	(0.0134)***	(0.0126)***
SE (EHW)	(0.0043)***	(0.0042)***	(0.0042)***	(0.0042)***	(0.0044)***	(0.0043)***	(0.0043)***	(0.0042)***	(0.0046)***	(0.0045)***	(0.0046)***	(0.0044)***	(0.0062)***	(0.0059)***	(0.0061)***	(0.0058)***
%Δ	-31.8	-32.6	-30.3	-30.6	-23.4	-25.8	-24.1	-25.0	-19.0	-20.7	-19.2	-19.8	-5.5	-9.2	-7.0	-9.6
%Δ (95% CI – Clustered)	[-37.4, -26.3]	[-38.0, -27.3]	[-35.8, -24.9]	[-35.8, -25.4]	[-28.9, -17.9]	[-31.0, -20.6]	[-29.5, -18.7]	[-30.1, -19.9]	[-24.1, -13.9]	[-25.4, -16.0]	[-24.1, -14.4]	[-24.3, -15.4]	[-10.1, -0.8]	[-13.5, -4.8]	[-11.1, -2.9]	[-13.5, -5.7]
%Δ (95% CI – EHW)	[-33.1, -30.5]	[-33.9, -31.3]	[-31.6, -29.0]	[-31.9, -29.3]	[-24.8, -22.1]	[-27.1, -24.5]	[-25.4, -22.8]	[-26.3, -23.7]	[-20.4, -17.6]	[-22.0, -19.3]	[-20.6, -17.8]	[-21.2, -18.5]	[-7.4, -3.6]	[-11.0, -7.3]	[-8.8, -5.1]	[-11.4, -7.8]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.099	-0.100	-0.093	-0.095	-0.074	-0.080	-0.076	-0.078	-0.064	-0.066	-0.063	-0.064	-0.025	-0.034	-0.029	-0.035
SE (Clustered)	(0.0058)***	(0.0054)***	(0.0052)***	(0.0048)***	(0.0058)***	(0.0053)***	(0.0051)***	(0.0048)***	(0.0053)***	(0.0047)***	(0.0045)***	(0.0041)***	(0.0050)***	(0.0046)***	(0.0041)***	(0.0038)***
SE (EHW)	(0.0014)***	(0.0014)***	(0.0014)***	(0.0013)***	(0.0014)***	(0.0014)***	(0.0014)***	(0.0013)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0014)***	(0.0020)***	(0.0019)***	(0.0019)***	(0.0018)***
%Δ	-9.4	-9.5	-8.9	-9.0	-7.1	-7.7	-7.3	-7.5	-6.2	-6.4	-6.1	-6.2	-2.5	-3.4	-2.8	-3.5
%Δ (95% CI – Clustered)	[-10.4, -8.3]	[-10.5, -8.5]	[-9.8, -8.0]	[-9.9, -8.2]	[-8.1, -6.0]	[-8.6, -6.7]	[-8.2, -6.3]	[-8.4, -6.7]	[-7.2, -5.2]	[-7.2, -5.5]	[-6.9, -5.3]	[-7.0, -5.4]	[-3.4, -1.5]	[-4.2, -2.5]	[-3.6, -2.1]	[-4.2, -2.7]
%Δ (95% CI – EHW)	[-9.6, -9.1]	[-9.8, -9.3]	[-9.2, -8.7]	[-9.3, -8.8]	[-7.3, -6.8]	[-7.9, -7.4]	[-7.5, -7.0]	[-7.8, -7.3]	[-6.5, -5.9]	[-6.7, -6.1]	[-6.4, -5.8]	[-6.5, -5.9]	[-2.9, -2.1]	[-3.7, -3.0]	[-3.2, -2.5]	[-3.8, -3.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.1.3. Dummy for Positive 2-Year Cites from Researchers at a Commercial Enterprise (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.096]				[0.096]				[0.097]				[0.096]		
Poisson																
NIH × Post April 2008	-0.041	-0.056	-0.050	-0.061	-0.017	-0.047	-0.047	-0.059	-0.050	-0.048	-0.050	-0.055	-0.044	-0.045	-0.044	-0.050
SE (Clustered)	(0.0174)**	(0.0164)***	(0.0153)***	(0.0155)***	(0.0183)	(0.0166)***	(0.0154)***	(0.0155)***	(0.0173)***	(0.0174)***	(0.0157)***	(0.0160)***	(0.0203)**	(0.0200)**	(0.0189)**	(0.0191)***
SE (EHW)	(0.0146)***	(0.0145)***	(0.0152)***	(0.0153)***	(0.0146)	(0.0145)***	(0.0153)***	(0.0153)***	(0.0154)***	(0.0154)***	(0.0161)***	(0.0161)***	(0.0198)**	(0.0194)**	(0.0208)**	(0.0209)**
%Δ	-4.1	-5.4	-4.9	-5.9	-1.7	-4.5	-4.6	-5.7	-4.9	-4.6	-4.9	-5.3	-4.3	-4.4	-4.3	-4.9
%Δ (95% CI – Clustered)	[-7.3, -0.7]	[-8.4, -2.3]	[-7.7, -2.0]	[-8.7, -3.0]	[-5.2, 1.9]	[-7.6, -1.4]	[-7.4, -1.7]	[-8.5, -2.8]	[-8.0, -1.6]	[-7.9, -1.3]	[-7.8, -2.0]	[-8.3, -2.3]	[-8.1, -0.4]	[-8.0, -0.5]	[-7.8, -0.7]	[-8.4, -1.3]
%Δ (95% CI – EHW)	[-6.8, -1.3]	[-8.1, -2.7]	[-7.7, -2.0]	[-8.7, -3.0]	[-4.5, 1.1]	[-7.2, -1.8]	[-7.4, -1.7]	[-8.5, -2.8]	[-7.7, -2.0]	[-7.5, -1.7]	[-7.9, -1.9]	[-8.3, -2.3]	[-8.0, -0.5]	[-7.9, -0.6]	[-8.1, -0.3]	[-8.7, -0.9]
Observations	2,103,480		1,834,952		1,707,823		1,596,886		1,203,393		1,067,550		451,968		406,011	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.005	-0.005	-0.005	-0.005	-0.003	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.005	-0.004	-0.005	-0.004	-0.005
SE (Clustered)	(0.0014)***	(0.0013)***	(0.0013)***	(0.0013)***	(0.0014)**	(0.0014)***	(0.0013)***	(0.0013)***	(0.0014)***	(0.0014)***	(0.0013)***	(0.0013)***	(0.0018)**	(0.0017)***	(0.0017)**	(0.0016)***
SE (EHW)	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0013)***	(0.0013)***	(0.0013)***	(0.0012)***	(0.0017)**	(0.0016)***	(0.0017)**	(0.0016)***
%Δ	-4.9	-5.7	-5.0	-5.6	-3.5	-5.0	-4.8	-5.5	-5.0	-5.5	-4.8	-5.2	-4.5	-4.9	-4.4	-4.8
%Δ (95% CI – Clustered)	[-7.8, -2.1]	[-8.4, -3.0]	[-7.7, -2.3]	[-8.2, -2.9]	[-6.5, -0.5]	[-7.7, -2.2]	[-7.6, -2.1]	[-8.2, -2.8]	[-7.9, -2.1]	[-8.3, -2.8]	[-7.5, -2.1]	[-7.9, -2.6]	[-8.1, -0.9]	[-8.3, -1.4]	[-7.8, -1.0]	[-8.2, -1.5]
%Δ (95% CI – EHW)	[-7.4, -2.4]	[-8.1, -3.2]	[-7.4, -2.5]	[-8.0, -3.2]	[-6.0, -1.0]	[-7.5, -2.5]	[-7.3, -2.4]	[-7.9, -3.1]	[-7.6, -2.3]	[-8.1, -3.0]	[-7.4, -2.2]	[-7.7, -2.7]	[-7.9, -1.0]	[-8.2, -1.5]	[-7.8, -1.0]	[-8.2, -1.5]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.004	-0.005	-0.004	-0.005	-0.003	-0.004	-0.004	-0.005	-0.004	-0.005	-0.004	-0.004	-0.004	-0.004	-0.004	-0.004
SE (Clustered)	(0.0012)***	(0.0012)***	(0.0012)***	(0.0011)***	(0.0013)**	(0.0012)***	(0.0012)***	(0.0012)***	(0.0013)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0016)**	(0.0015)***	(0.0015)**	(0.0014)***
SE (EHW)	(0.0011)***	(0.0011)***	(0.0011)***	(0.0010)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0015)**	(0.0015)***	(0.0015)**	(0.0014)***
%Δ	-0.4	-0.5	-0.4	-0.5	-0.3	-0.4	-0.4	-0.5	-0.4	-0.5	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
%Δ (95% CI – Clustered)	[-0.7, -0.2]	[-0.7, -0.3]	[-0.6, -0.2]	[-0.7, -0.2]	[-0.5, -0.0]	[-0.7, -0.2]	[-0.6, -0.2]	[-0.7, -0.2]	[-0.7, -0.2]	[-0.7, -0.2]	[-0.6, -0.2]	[-0.7, -0.2]	[-0.7, -0.1]	[-0.7, -0.1]	[-0.7, -0.1]	[-0.7, -0.1]
%Δ (95% CI – EHW)	[-0.6, -0.2]	[-0.7, -0.3]	[-0.6, -0.2]	[-0.7, -0.3]	[-0.5, -0.1]	[-0.6, -0.2]	[-0.6, -0.2]	[-0.7, -0.3]	[-0.6, -0.2]	[-0.7, -0.3]	[-0.6, -0.2]	[-0.7, -0.2]	[-0.7, -0.1]	[-0.7, -0.1]	[-0.7, -0.1]	[-0.7, -0.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.101]				[0.101]				[0.101]				[0.101]		
Poisson																
NIH × Post April 2008	-0.039	-0.077	-0.067	-0.098	0.006	-0.056	-0.058	-0.091	-0.043	-0.075	-0.072	-0.092	0.003	-0.039	-0.029	-0.059
SE (Clustered)	(0.0190)**	(0.0157)***	(0.0133)***	(0.0114)***	(0.0189)	(0.0156)***	(0.0133)***	(0.0114)***	(0.0181)**	(0.0156)***	(0.0124)***	(0.0114)***	(0.0184)	(0.0170)**	(0.0130)**	(0.0126)***
SE (EHW)	(0.0086)***	(0.0087)***	(0.0090)***	(0.0091)***	(0.0086)	(0.0087)***	(0.0091)***	(0.0091)***	(0.0093)***	(0.0095)***	(0.0097)***	(0.0097)***	(0.0116)	(0.0117)***	(0.0123)**	(0.0123)***
%Δ	-3.9	-7.4	-6.5	-9.3	0.6	-5.5	-5.6	-8.7	-4.2	-7.2	-7.0	-8.8	0.3	-3.9	-2.8	-5.8
%Δ (95% CI – Clustered)	[-7.4, -0.2]	[-10.2, -4.5]	[-8.9, -4.1]	[-11.3, -7.3]	[-3.1, 4.4]	[-8.3, -2.6]	[-8.1, -3.1]	[-10.8, -6.7]	[-7.5, -0.7]	[-10.0, -4.3]	[-9.2, -4.7]	[-10.8, -6.7]	[-3.2, 4.0]	[-7.0, -0.6]	[-5.3, -0.3]	[-8.1, -3.4]
%Δ (95% CI – EHW)	[-5.5, -2.2]	[-8.9, -5.8]	[-8.2, -4.9]	[-10.9, -7.7]	[-1.1, 2.3]	[-7.1, -3.9]	[-7.3, -3.9]	[-10.3, -7.1]	[-5.9, -2.4]	[-8.9, -5.5]	[-8.7, -5.2]	[-10.5, -7.0]	[-1.9, 2.7]	[-6.0, -1.6]	[-5.1, -0.5]	[-8.0, -3.5]
Observations	6,108,951		5,599,997		4,918,431		4,704,155		3,067,679		2,832,068		1,288,882		1,198,764	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.012	-0.014	-0.011	-0.013	-0.008	-0.011	-0.010	-0.012	-0.009	-0.010	-0.009	-0.010	-0.002	-0.006	-0.004	-0.007
SE (Clustered)	(0.0016)***	(0.0014)***	(0.0013)***	(0.0012)***	(0.0016)***	(0.0014)***	(0.0013)***	(0.0011)***	(0.0015)***	(0.0013)***	(0.0012)***	(0.0011)***	(0.0016)	(0.0014)***	(0.0012)***	(0.0011)***
SE (EHW)	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0010)**	(0.0010)***	(0.0010)***	(0.0009)***
%Δ	-11.7	-13.5	-11.4	-12.8	-7.9	-11.2	-10.0	-11.8	-8.6	-10.4	-9.4	-10.4	-2.3	-5.9	-4.2	-6.9
%Δ (95% CI – Clustered)	[-14.8, -8.7]	[-16.2, -10.7]	[-13.9, -8.9]	[-15.0, -10.5]	[-11.0, -4.9]	[-13.9, -8.6]	[-12.4, -7.5]	[-14.0, -9.6]	[-11.6, -5.7]	[-12.9, -7.8]	[-11.6, -7.1]	[-12.4, -8.3]	[-5.4, 0.9]	[-8.7, -3.1]	[-6.5, -1.9]	[-9.0, -4.7]
%Δ (95% CI – EHW)	[-13.1, -10.4]	[-14.8, -12.1]	[-12.7, -10.0]	[-14.1, -11.4]	[-9.3, -6.5]	[-12.6, -9.9]	[-11.3, -8.6]	[-13.1, -10.4]	[-10.1, -7.2]	[-11.8, -8.9]	[-10.8, -7.9]	[-11.8, -9.0]	[-4.2, -0.4]	[-7.7, -4.1]	[-6.1, -2.4]	[-8.7, -5.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.010	-0.012	-0.010	-0.011	-0.007	-0.010	-0.009	-0.010	-0.008	-0.009	-0.008	-0.009	-0.002	-0.005	-0.004	-0.006
SE (Clustered)	(0.0014)***	(0.0012)***	(0.0011)***	(0.0010)***	(0.0014)***	(0.0012)***	(0.0011)***	(0.0010)***	(0.0014)***	(0.0012)***	(0.0010)***	(0.0009)***	(0.0014)	(0.0013)***	(0.0010)***	(0.0010)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0006)***	(0.0009)**	(0.0008)***	(0.0009)***	(0.0008)***
%Δ	-1.0	-1.2	-1.0	-1.1	-0.7	-1.0	-0.9	-1.0	-0.8	-0.9	-0.8	-0.9	-0.2	-0.5	-0.4	-0.6
%Δ (95% CI – Clustered)	[-1.3, -0.8]	[-1.4, -0.9]	[-1.2, -0.8]	[-1.3, -0.9]	[-1.0, -0.4]	[-1.2, -0.8]	[-1.1, -0.7]	[-1.2, -0.8]	[-1.0, -0.5]	[-1.1, -0.7]	[-1.0, -0.6]	[-1.1, -0.7]	[-0.5, 0.1]	[-0.8, -0.3]	[-0.6, -0.2]	[-0.8, -0.4]
%Δ (95% CI – EHW)	[-1.2, -0.9]	[-1.3, -1.1]	[-1.1, -0.9]	[-1.2, -1.0]	[-0.8, -0.6]	[-1.1, -0.9]	[-1.0, -0.8]	[-1.2, -0.9]	[-0.9, -0.6]	[-1.0, -0.8]	[-1.0, -0.7]	[-1.0, -0.8]	[-0.4, -0.0]	[-0.7, -0.4]	[-0.5, -0.2]	[-0.8, -0.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.1.4. Dummy for Lifetime Cites from Researchers at a Commercial Enterprise (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.226]				[0.226]				[0.227]				[0.227]		
Poisson																
NIH × Post April 2008	0.006	-0.001	-0.003	-0.009	0.023	0.002	-0.005	-0.013	-0.015	-0.010	-0.017	-0.018	-0.022	-0.021	-0.021	-0.026
SE (Clustered)	(0.0119)	(0.0105)	(0.0094)	(0.0095)	(0.0130)*	(0.0106)	(0.0095)	(0.0095)	(0.0115)	(0.0112)	(0.0100)*	(0.0101)*	(0.0133)	(0.0129)*	(0.0122)*	(0.0121)**
SE (EHW)	(0.0092)	(0.0092)	(0.0102)	(0.0102)	(0.0093)**	(0.0092)	(0.0103)	(0.0103)	(0.0098)	(0.0097)	(0.0109)	(0.0109)*	(0.0127)*	(0.0124)*	(0.0141)	(0.0142)*
%Δ	0.6	-0.1	-0.3	-0.9	2.4	0.2	-0.5	-1.3	-1.5	-0.9	-1.7	-1.8	-2.1	-2.1	-2.1	-2.6
%Δ (95% CI – Clustered)	[-1.7, 3.0]	[-2.1, 2.0]	[-2.1, 1.6]	[-2.7, 0.9]	[-0.2, 5.0]	[-1.8, 2.3]	[-2.4, 1.3]	[-3.1, 0.6]	[-3.7, 0.8]	[-3.1, 1.2]	[-3.6, 0.3]	[-3.7, 0.1]	[-4.6, 0.5]	[-4.6, 0.4]	[-4.4, 0.3]	[-4.9, -0.3]
%Δ (95% CI – EHW)	[-1.2, 2.4]	[-1.8, 1.8]	[-2.2, 1.8]	[-2.9, 1.1]	[0.5, 4.2]	[-1.6, 2.1]	[-2.5, 1.5]	[-3.3, 0.7]	[-3.3, 0.4]	[-2.8, 0.9]	[-3.7, 0.5]	[-3.9, 0.3]	[-4.5, 0.3]	[-4.5, 0.3]	[-4.8, 0.7]	[-5.3, 0.1]
Observations	2,103,480		1,951,967		1,707,823		1,641,950		1,203,393		1,121,071		451,968		422,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.024	-0.024	-0.023	-0.024	-0.017	-0.020	-0.019	-0.020	-0.020	-0.020	-0.019	-0.019	-0.011	-0.012	-0.011	-0.012
SE (Clustered)	(0.0021)***	(0.0019)***	(0.0018)***	(0.0018)***	(0.0022)***	(0.0020)***	(0.0019)***	(0.0018)***	(0.0021)***	(0.0020)***	(0.0019)***	(0.0018)***	(0.0026)***	(0.0024)***	(0.0024)***	(0.0023)***
SE (EHW)	(0.0017)***	(0.0017)***	(0.0016)***	(0.0016)***	(0.0017)***	(0.0017)***	(0.0017)***	(0.0016)***	(0.0018)***	(0.0018)***	(0.0017)***	(0.0017)***	(0.0024)***	(0.0023)***	(0.0023)***	(0.0022)***
%Δ	-10.4	-10.8	-10.4	-10.8	-7.6	-8.6	-8.5	-8.9	-8.6	-8.7	-8.3	-8.5	-5.0	-5.2	-4.8	-5.1
%Δ (95% CI – Clustered)	[-12.2, -8.6]	[-12.5, -9.1]	[-12.0, -8.8]	[-12.3, -9.2]	[-9.5, -5.7]	[-10.3, -6.9]	[-10.1, -6.9]	[-10.5, -7.3]	[-10.4, -6.8]	[-10.4, -7.0]	[-10.0, -6.7]	[-10.1, -6.9]	[-7.3, -2.8]	[-7.3, -3.2]	[-6.9, -2.8]	[-7.1, -3.1]
%Δ (95% CI – EHW)	[-11.9, -8.9]	[-12.2, -9.3]	[-11.8, -8.9]	[-12.2, -9.4]	[-9.1, -6.1]	[-10.1, -7.2]	[-9.9, -7.0]	[-10.3, -7.5]	[-10.2, -7.0]	[-10.2, -7.1]	[-9.9, -6.8]	[-10.0, -7.0]	[-7.1, -3.0]	[-7.2, -3.3]	[-6.8, -2.8]	[-7.1, -3.2]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.021	-0.021	-0.021	-0.021	-0.015	-0.017	-0.017	-0.018	-0.017	-0.017	-0.017	-0.017	-0.010	-0.010	-0.010	-0.010
SE (Clustered)	(0.0018)***	(0.0017)***	(0.0016)***	(0.0016)***	(0.0019)***	(0.0017)***	(0.0016)***	(0.0016)***	(0.0019)***	(0.0017)***	(0.0017)***	(0.0016)***	(0.0023)***	(0.0021)***	(0.0021)***	(0.0020)***
SE (EHW)	(0.0015)***	(0.0015)***	(0.0015)***	(0.0014)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0014)***	(0.0016)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0021)***	(0.0020)***	(0.0020)***	(0.0020)***
%Δ	-2.1	-2.1	-2.0	-2.1	-1.5	-1.7	-1.7	-1.8	-1.7	-1.7	-1.7	-1.7	-1.0	-1.0	-1.0	-1.0
%Δ (95% CI – Clustered)	[-2.4, -1.7]	[-2.5, -1.8]	[-2.4, -1.7]	[-2.4, -1.8]	[-1.9, -1.1]	[-2.0, -1.4]	[-2.0, -1.4]	[-2.1, -1.5]	[-2.1, -1.3]	[-2.1, -1.4]	[-2.0, -1.3]	[-2.0, -1.4]	[-1.4, -0.6]	[-1.5, -0.6]	[-1.4, -0.6]	[-1.4, -0.6]
%Δ (95% CI – EHW)	[-2.3, -1.8]	[-2.4, -1.8]	[-2.3, -1.8]	[-2.4, -1.8]	[-1.8, -1.2]	[-2.0, -1.4]	[-2.0, -1.4]	[-2.0, -1.5]	[-2.0, -1.4]	[-2.0, -1.4]	[-2.0, -1.4]	[-2.0, -1.4]	[-1.4, -0.6]	[-1.4, -0.7]	[-1.4, -0.6]	[-1.4, -0.6]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.263]				[0.263]				[0.264]				[0.264]		
Poisson																
NIH × Post April 2008	0.030	0.016	0.008	-0.009	0.063	0.023	0.008	-0.012	0.004	-0.015	-0.023	-0.034	0.015	-0.015	-0.010	-0.032
SE (Clustered)	(0.0151)**	(0.0122)	(0.0104)	(0.0095)	(0.0152)***	(0.0123)*	(0.0105)	(0.0095)	(0.0131)	(0.0118)	(0.0093)**	(0.0091)***	(0.0127)	(0.0119)	(0.0088)	(0.0090)***
SE (EHW)	(0.0057)***	(0.0057)***	(0.0063)	(0.0064)	(0.0058)***	(0.0057)***	(0.0064)	(0.0064)*	(0.0062)	(0.0063)**	(0.0068)***	(0.0068)***	(0.0078)*	(0.0078)*	(0.0087)	(0.0087)***
%Δ	3.0	1.6	0.9	-0.8	6.5	2.3	0.8	-1.2	0.4	-1.5	-2.2	-3.4	1.5	-1.4	-1.0	-3.1
%Δ (95% CI – Clustered)	[0.0, 6.1]	[-0.8, 4.0]	[-1.2, 2.9]	[-2.7, 1.0]	[3.4, 9.8]	[-0.1, 4.8]	[-1.2, 2.9]	[-3.0, 0.7]	[-2.2, 3.0]	[-3.7, 0.9]	[-4.0, -0.4]	[-5.1, -1.6]	[-1.0, 4.1]	[-3.7, 0.9]	[-2.7, 0.7]	[-4.8, -1.4]
%Δ (95% CI – EHW)	[1.9, 4.2]	[0.4, 2.7]	[-0.4, 2.1]	[-2.1, 0.4]	[5.3, 7.7]	[1.2, 3.5]	[-0.4, 2.1]	[-2.4, 0.1]	[-0.9, 1.6]	[-2.7, -0.2]	[-3.5, -0.9]	[-4.6, -2.0]	[-0.0, 3.1]	[-2.9, 0.1]	[-2.7, 0.7]	[-4.8, -1.5]
Observations	6,108,951		5,799,669		4,918,431		4,770,869		3,067,679		2,923,572		1,288,882		1,229,717	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.062	-0.062	-0.058	-0.059	-0.045	-0.049	-0.047	-0.048	-0.041	-0.041	-0.040	-0.040	-0.016	-0.021	-0.018	-0.022
SE (Clustered)	(0.0030)***	(0.0027)***	(0.0024)***	(0.0022)***	(0.0030)***	(0.0027)***	(0.0024)***	(0.0022)***	(0.0027)***	(0.0023)***	(0.0020)***	(0.0019)***	(0.0026)***	(0.0023)***	(0.0019)***	(0.0018)***
SE (EHW)	(0.0010)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0009)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0013)***	(0.0013)***	(0.0013)***	(0.0013)***
%Δ	-23.6	-23.7	-22.2	-22.5	-17.2	-18.7	-17.7	-18.4	-15.6	-15.5	-15.1	-15.1	-6.2	-8.0	-6.9	-8.3
%Δ (95% CI – Clustered)	[-25.9, -21.4]	[-25.7, -21.6]	[-24.0, -20.4]	[-24.2, -20.9]	[-19.4, -14.9]	[-20.6, -16.7]	[-19.5, -16.0]	[-20.1, -16.8]	[-17.6, -13.6]	[-17.3, -13.8]	[-16.6, -13.6]	[-16.5, -13.8]	[-8.1, -4.2]	[-9.8, -6.3]	[-8.4, -5.5]	[-9.7, -7.0]
%Δ (95% CI – EHW)	[-24.3, -22.9]	[-24.4, -23.0]	[-22.9, -21.5]	[-23.2, -21.8]	[-17.9, -16.5]	[-19.4, -17.9]	[-18.4, -17.0]	[-19.1, -17.7]	[-16.4, -14.8]	[-16.3, -14.8]	[-15.9, -14.4]	[-15.9, -14.4]	[-7.2, -5.2]	[-9.0, -7.1]	[-7.9, -6.0]	[-9.3, -7.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.055	-0.055	-0.051	-0.052	-0.040	-0.043	-0.041	-0.043	-0.036	-0.036	-0.035	-0.035	-0.014	-0.019	-0.016	-0.019
SE (Clustered)	(0.0027)***	(0.0024)***	(0.0021)***	(0.0020)***	(0.0026)***	(0.0023)***	(0.0021)***	(0.0019)***	(0.0024)***	(0.0021)***	(0.0018)***	(0.0016)***	(0.0023)***	(0.0020)***	(0.0017)***	(0.0016)***
SE (EHW)	(0.0009)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0012)***	(0.0011)***	(0.0012)***	(0.0011)***
%Δ	-5.3	-5.3	-5.0	-5.1	-3.9	-4.2	-4.0	-4.2	-3.6	-3.5	-3.5	-3.5	-1.4	-1.9	-1.6	-1.9
%Δ (95% CI – Clustered)	[-5.8, -4.8]	[-5.8, -4.9]	[-5.4, -4.6]	[-5.5, -4.7]	[-4.4, -3.4]	[-4.7, -3.8]	[-4.4, -3.6]	[-4.5, -3.8]	[-4.0, -3.1]	[-3.9, -3.2]	[-3.8, -3.1]	[-3.8, -3.1]	[-1.9, -1.0]	[-2.2, -1.5]	[-1.9, -1.3]	[-2.2, -1.6]
%Δ (95% CI – EHW)	[-5.5, -5.2]	[-5.5, -5.2]	[-5.2, -4.9]	[-5.2, -4.9]	[-4.1, -3.7]	[-4.4, -4.1]	[-4.2, -3.9]	[-4.3, -4.0]	[-3.7, -3.4]	[-3.7, -3.4]	[-3.6, -3.3]	[-3.6, -3.3]	[-1.7, -1.2]	[-2.1, -1.6]	[-1.8, -1.4]	[-2.1, -1.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.2.1. Count of 2-Year Cites from Researchers at a Commercial Enterprise (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.146]		[0.145]		[0.145]	
Poisson						
Post April 2008	0.056	0.035	-0.010	-0.015	0.021	0.012
SE (EHW)	(0.0647)	(0.0688)	(0.0455)	(0.0460)	(0.0326)	(0.0324)
%Δ	5.7	3.6	-1.0	-1.5	2.1	1.3
%Δ (95% CI – EHW)	[-6.9, 20.0]	[-9.5, 18.5]	[-9.5, 8.2]	[-10.0, 7.8]	[-4.2, 8.8]	[-5.0, 7.9]
Linear – Levels						
Post April 2008	0.008	0.005	-0.001	-0.002	0.003	0.002
SE (EHW)	(0.0094)	(0.0101)	(0.0066)	(0.0067)	(0.0047)	(0.0047)
%Δ	5.5	3.5	-1.0	-1.5	2.0	1.2
%Δ (95% CI – EHW)	[-7.1, 18.1]	[-10.0, 17.0]	[-9.9, 7.8]	[-10.5, 7.5]	[-4.2, 8.3]	[-5.2, 7.5]
Linear – IHS						
Post April 2008	0.006	0.004	-0.001	-0.002	0.001	-0.000
SE (EHW)	(0.0054)	(0.0056)	(0.0038)	(0.0038)	(0.0026)	(0.0027)
%Δ	0.6	0.4	-0.1	-0.2	0.1	-0.0
%Δ (95% CI – EHW)	[-0.5, 1.7]	[-0.7, 1.5]	[-0.8, 0.6]	[-0.9, 0.6]	[-0.5, 0.6]	[-0.5, 0.5]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	0.048	0.066	-0.012	0.014	0.015	-0.016
SE (EHW)	(0.0663)	(0.1244)	(0.0458)	(0.0712)	(0.0324)	(0.0478)
%Δ	4.9	6.8	-1.1	1.4	1.5	-1.6
%Δ (95% CI – EHW)	[-7.8, 19.5]	[-16.3, 36.3]	[-9.6, 8.1]	[-11.8, 16.5]	[-4.7, 8.2]	[-10.4, 8.1]
Linear – Levels						
Post April 2008	0.007	0.010	-0.002	0.002	0.002	-0.002
SE (EHW)	(0.0097)	(0.0182)	(0.0066)	(0.0104)	(0.0047)	(0.0069)
%Δ	4.8	6.7	-1.1	1.4	1.4	-1.5
%Δ (95% CI – EHW)	[-8.2, 17.7]	[-17.7, 31.1]	[-10.1, 7.8]	[-12.7, 15.4]	[-4.9, 7.7]	[-10.9, 7.9]
Linear – IHS						
Post April 2008	0.005	0.008	-0.001	0.002	0.000	-0.002
SE (EHW)	(0.0055)	(0.0101)	(0.0038)	(0.0058)	(0.0026)	(0.0039)
%Δ	0.5	0.8	-0.1	0.2	0.0	-0.2
%Δ (95% CI – EHW)	[-0.6, 1.6]	[-1.2, 2.8]	[-0.9, 0.6]	[-0.9, 1.4]	[-0.5, 0.5]	[-1.0, 0.5]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations from researchers at a commercial enterprise. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table J.2.2. Count of Lifetime Cites from Researchers at a Commercial Enterprise (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.459]		[0.471]		[0.496]	
Poisson						
Post April 2008	0.066	0.065	0.008	0.003	0.015	0.011
SE (EHW)	(0.0521)	(0.0551)	(0.0371)	(0.0373)	(0.0271)	(0.0266)
%Δ	6.9	6.7	0.8	0.3	1.5	1.1
%Δ (95% CI – EHW)	[-3.5, 18.4]	[-4.2, 18.9]	[-6.3, 8.4]	[-6.7, 7.9]	[-3.8, 7.1]	[-4.0, 6.6]
Linear – Levels						
Post April 2008	0.029	0.029	0.003	0.001	0.005	0.002
SE (EHW)	(0.0231)	(0.0247)	(0.0164)	(0.0168)	(0.0118)	(0.0120)
%Δ	6.3	6.4	0.6	0.3	1.0	0.4
%Δ (95% CI – EHW)	[-3.6, 16.2]	[-4.1, 17.0]	[-6.2, 7.4]	[-6.7, 7.3]	[-3.6, 5.7]	[-4.3, 5.2]
Linear – IHS						
Post April 2008	0.013	0.011	0.001	-0.001	0.002	0.000
SE (EHW)	(0.0089)	(0.0094)	(0.0063)	(0.0064)	(0.0044)	(0.0044)
%Δ	1.3	1.1	0.1	-0.1	0.2	0.0
%Δ (95% CI – EHW)	[-0.5, 3.1]	[-0.7, 3.0]	[-1.1, 1.3]	[-1.3, 1.2]	[-0.7, 1.1]	[-0.8, 0.9]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	0.067	0.152	0.006	0.048	0.018	0.009
SE (EHW)	(0.0532)	(0.1012)	(0.0371)	(0.0573)	(0.0267)	(0.0389)
%Δ	6.9	16.4	0.6	4.9	1.8	0.9
%Δ (95% CI – EHW)	[-3.7, 18.7]	[-4.6, 41.9]	[-6.5, 8.2]	[-6.2, 17.4]	[-3.4, 7.3]	[-6.5, 8.9]
Linear – Levels						
Post April 2008	0.030	0.068	0.002	0.022	0.003	0.006
SE (EHW)	(0.0238)	(0.0451)	(0.0166)	(0.0258)	(0.0119)	(0.0175)
%Δ	6.5	14.9	0.5	4.6	0.6	1.1
%Δ (95% CI – EHW)	[-3.7, 16.7]	[-4.4, 34.2]	[-6.4, 7.4]	[-6.2, 15.3]	[-4.1, 5.3]	[-5.8, 8.0]
Linear – IHS						
Post April 2008	0.012	0.037	0.000	0.009	0.001	0.001
SE (EHW)	(0.0091)	(0.0167)**	(0.0063)	(0.0097)	(0.0044)	(0.0066)
%Δ	1.2	3.7	0.0	0.9	0.1	0.1
%Δ (95% CI – EHW)	[-0.6, 3.0]	[0.4, 7.2]	[-1.2, 1.3]	[-1.0, 2.8]	[-0.8, 0.9]	[-1.2, 1.4]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations from researchers at a commercial enterprise. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table J.2.3. Dummy for Positive 2-Year Cites from Researchers at a Commercial Enterprise (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.097]		[0.097]		[0.097]	
Poisson						
Post April 2008	0.049	0.027	-0.016	-0.024	-0.010	-0.015
SE (EHW)	(0.0472)	(0.0491)	(0.0334)	(0.0335)	(0.0237)	(0.0236)
%Δ	5.0	2.8	-1.6	-2.4	-1.0	-1.5
%Δ (95% CI – EHW)	[-4.3, 15.2]	[-6.7, 13.1]	[-7.9, 5.0]	[-8.6, 4.3]	[-5.5, 3.7]	[-5.9, 3.2]
Linear – Levels						
Post April 2008	0.005	0.003	-0.002	-0.002	-0.001	-0.001
SE (EHW)	(0.0045)	(0.0048)	(0.0032)	(0.0032)	(0.0022)	(0.0022)
%Δ	4.8	2.7	-1.6	-2.4	-1.0	-1.5
%Δ (95% CI – EHW)	[-4.3, 13.9]	[-6.9, 12.3]	[-8.1, 4.8]	[-8.9, 4.1]	[-5.5, 3.6]	[-6.1, 3.0]
Linear – IHS						
Post April 2008	0.004	0.002	-0.001	-0.002	-0.001	-0.001
SE (EHW)	(0.0040)	(0.0042)	(0.0028)	(0.0028)	(0.0020)	(0.0020)
%Δ	0.4	0.2	-0.1	-0.2	-0.1	-0.1
%Δ (95% CI – EHW)	[-0.4, 1.2]	[-0.6, 1.1]	[-0.7, 0.4]	[-0.8, 0.4]	[-0.5, 0.3]	[-0.5, 0.3]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	0.039	0.074	-0.019	0.020	-0.013	-0.031
SE (EHW)	(0.0479)	(0.0880)	(0.0335)	(0.0509)	(0.0236)	(0.0348)
%Δ	4.0	7.7	-1.9	2.0	-1.3	-3.1
%Δ (95% CI – EHW)	[-5.3, 14.3]	[-9.4, 28.0]	[-8.1, 4.8]	[-7.7, 12.7]	[-5.7, 3.4]	[-9.5, 3.7]
Linear – Levels						
Post April 2008	0.004	0.007	-0.002	0.002	-0.001	-0.003
SE (EHW)	(0.0046)	(0.0085)	(0.0032)	(0.0049)	(0.0022)	(0.0033)
%Δ	3.8	7.4	-1.9	1.9	-1.3	-3.1
%Δ (95% CI – EHW)	[-5.5, 13.2]	[-9.8, 24.6]	[-8.4, 4.6]	[-8.1, 11.9]	[-5.9, 3.2]	[-9.9, 3.7]
Linear – IHS						
Post April 2008	0.003	0.006	-0.002	0.002	-0.001	-0.003
SE (EHW)	(0.0041)	(0.0075)	(0.0028)	(0.0043)	(0.0020)	(0.0029)
%Δ	0.3	0.6	-0.2	0.2	-0.1	-0.3
%Δ (95% CI – EHW)	[-0.5, 1.1]	[-0.8, 2.1]	[-0.7, 0.4]	[-0.7, 1.0]	[-0.5, 0.3]	[-0.8, 0.3]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations from researchers at a commercial enterprise. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table J.2.4. Dummy for Lifetime Cites from Researchers at a Commercial Enterprise (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.215]		[0.218]		[0.226]	
Poisson						
Post April 2008	0.036	0.030	0.000	-0.005	0.006	0.002
SE (EHW)	(0.0297)	(0.0309)	(0.0210)	(0.0210)	(0.0150)	(0.0148)
%Δ	3.7	3.0	0.0	-0.5	0.6	0.2
%Δ (95% CI – EHW)	[-2.2, 9.9]	[-3.1, 9.4]	[-4.0, 4.2]	[-4.5, 3.7]	[-2.3, 3.6]	[-2.7, 3.1]
Linear – Levels						
Post April 2008	0.007	0.006	-0.000	-0.001	0.001	-0.000
SE (EHW)	(0.0062)	(0.0065)	(0.0044)	(0.0044)	(0.0031)	(0.0031)
%Δ	3.4	2.9	-0.0	-0.6	0.4	-0.1
%Δ (95% CI – EHW)	[-2.2, 9.1]	[-3.1, 8.9]	[-4.0, 3.9]	[-4.5, 3.4]	[-2.3, 3.1]	[-2.8, 2.6]
Linear – IHS						
Post April 2008	0.007	0.006	-0.000	-0.001	0.001	-0.000
SE (EHW)	(0.0055)	(0.0058)	(0.0039)	(0.0039)	(0.0027)	(0.0027)
%Δ	0.7	0.6	-0.0	-0.1	0.1	-0.0
%Δ (95% CI – EHW)	[-0.4, 1.7]	[-0.6, 1.7]	[-0.8, 0.8]	[-0.9, 0.7]	[-0.5, 0.6]	[-0.6, 0.5]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	0.033	0.113	-0.002	0.024	0.005	-0.005
SE (EHW)	(0.0301)	(0.0556)**	(0.0210)	(0.0320)	(0.0148)	(0.0218)
%Δ	3.4	12.0	-0.2	2.5	0.5	-0.5
%Δ (95% CI – EHW)	[-2.6, 9.6]	[0.4, 24.9]	[-4.2, 4.0]	[-3.7, 9.1]	[-2.4, 3.5]	[-4.7, 3.8]
Linear – Levels						
Post April 2008	0.007	0.024	-0.001	0.005	0.000	-0.001
SE (EHW)	(0.0064)	(0.0117)**	(0.0044)	(0.0068)	(0.0031)	(0.0046)
%Δ	3.2	11.2	-0.3	2.4	0.0	-0.4
%Δ (95% CI – EHW)	[-2.6, 9.0]	[0.5, 21.9]	[-4.3, 3.7]	[-3.7, 8.5]	[-2.7, 2.7]	[-4.4, 3.6]
Linear – IHS						
Post April 2008	0.006	0.021	-0.001	0.005	0.000	-0.001
SE (EHW)	(0.0056)	(0.0103)**	(0.0039)	(0.0060)	(0.0027)	(0.0041)
%Δ	0.6	2.2	-0.1	0.5	0.0	-0.1
%Δ (95% CI – EHW)	[-0.5, 1.7]	[0.1, 4.2]	[-0.8, 0.7]	[-0.7, 1.6]	[-0.5, 0.5]	[-0.9, 0.7]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations from researchers at a commercial enterprise. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\delta} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table J.3.1. Count of 2-Year Cites from Researchers at a Commercial Enterprise (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.145]				[0.145]				[0.145]				[0.145]		
Poisson																
NIH × Post April 2008	-0.124	-0.078	-0.070	-0.069	0.057	0.016	-0.024	-0.025	-0.078	-0.014	0.034	0.024	0.124	0.110	0.172	0.136
NIH × Post April 2008 × TA	0.094	0.023	0.033	0.017	-0.064	-0.063	-0.010	-0.025	0.046	-0.015	-0.068	-0.059	-0.154	-0.132	-0.203	-0.165
SE (Clustered)	(0.0995)	(0.0898)	(0.0782)	(0.0776)	(0.1244)	(0.0930)	(0.0794)	(0.0797)	(0.0948)	(0.1008)	(0.0920)	(0.0901)	(0.1191)	(0.1211)	(0.1361)	(0.1237)
SE (EHW)	(0.0844)	(0.0862)	(0.0607)	(0.0608)	(0.0854)	(0.0871)	(0.0615)	(0.0616)	(0.0903)	(0.0922)	(0.0639)	(0.0640)	(0.1154)	(0.1152)	(0.0780)***	(0.0781)**
%Δ	9.9	2.3	3.3	1.7	-6.2	-6.1	-1.0	-2.5	4.7	-1.5	-6.6	-5.8	-14.3	-12.4	-18.4	-15.2
%Δ (95% CI – Clustered)	[-9.6, 33.5]	[-14.2, 22.0]	[-11.3, 20.4]	[-12.6, 18.4]	[-26.5, 19.6]	[-21.8, 12.6]	[-15.3, 15.7]	[-16.6, 14.0]	[-13.1, 26.1]	[-19.2, 20.0]	[-22.0, 11.9]	[-21.0, 12.4]	[-32.1, 8.3]	[-30.9, 11.1]	[-37.5, 6.5]	[-33.5, 8.0]
%Δ (95% CI – EHW)	[-6.9, 29.6]	[-13.6, 21.1]	[-8.3, 16.4]	[-9.7, 14.6]	[-20.7, 10.8]	[-20.9, 11.4]	[-12.2, 11.7]	[-13.5, 10.1]	[-12.3, 24.9]	[-17.8, 18.0]	[-17.6, 5.9]	[-16.9, 6.8]	[-31.6, 7.5]	[-30.1, 9.8]	[-30.0, -4.9]	[-27.3, -1.2]
Observations	2,103,480		1,834,952		1,707,823		1,596,886		1,203,393		1,067,550		451,968		406,011	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.014	-0.011	-0.009	-0.006	-0.003	-0.007	-0.006	-0.003	-0.011	-0.002	-0.000	0.002	0.012	0.018	0.019	0.019
NIH × Post April 2008 × TA	0.009	0.004	0.003	-0.001	-0.000	0.001	0.001	-0.004	0.006	-0.004	-0.004	-0.008	-0.016	-0.023	-0.024	-0.024
SE (Clustered)	(0.0111)	(0.0107)	(0.0099)	(0.0097)	(0.0118)	(0.0106)	(0.0101)	(0.0100)	(0.0119)	(0.0117)	(0.0110)	(0.0108)	(0.0154)	(0.0156)	(0.0168)	(0.0161)
SE (EHW)	(0.0101)	(0.0098)	(0.0100)	(0.0098)	(0.0103)	(0.0101)	(0.0103)	(0.0101)	(0.0109)	(0.0106)	(0.0108)	(0.0106)	(0.0147)	(0.0142)	(0.0148)	(0.0144)*
%Δ	5.9	2.8	2.3	-0.4	-0.3	0.7	0.6	-2.5	4.2	-3.0	-3.0	-5.6	-11.2	-15.9	-16.3	-16.9
%Δ (95% CI – Clustered)	[-9.1, 21.0]	[-11.7, 17.3]	[-11.1, 15.7]	[-13.5, 12.8]	[-16.4, 15.7]	[-13.6, 15.1]	[-13.1, 14.3]	[-16.0, 11.1]	[-11.8, 20.2]	[-18.8, 12.7]	[-17.8, 11.8]	[-20.2, 9.0]	[-32.0, 9.7]	[-37.0, 5.3]	[-39.1, 6.5]	[-38.7, 5.0]
%Δ (95% CI – EHW)	[-7.7, 19.5]	[-10.5, 16.1]	[-11.2, 15.9]	[-13.6, 12.9]	[-14.3, 13.7]	[-12.9, 14.4]	[-13.3, 14.6]	[-16.1, 11.2]	[-10.4, 18.8]	[-17.3, 11.2]	[-17.6, 11.6]	[-19.8, 8.6]	[-31.0, 8.7]	[-35.2, 3.4]	[-36.3, 3.7]	[-36.3, 2.6]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.012	-0.010	-0.009	-0.008	-0.004	-0.007	-0.007	-0.006	-0.011	-0.005	-0.004	-0.002	0.005	0.009	0.009	0.009
NIH × Post April 2008 × TA	0.007	0.004	0.004	0.002	0.001	0.003	0.003	0.000	0.006	-0.001	-0.001	-0.003	-0.010	-0.014	-0.014	-0.014
SE (Clustered)	(0.0074)	(0.0070)	(0.0065)	(0.0064)	(0.0082)	(0.0070)	(0.0067)	(0.0067)	(0.0081)	(0.0077)	(0.0073)	(0.0072)	(0.0103)	(0.0101)	(0.0108)	(0.0104)
SE (EHW)	(0.0067)	(0.0065)	(0.0066)	(0.0065)	(0.0068)	(0.0066)	(0.0068)	(0.0066)	(0.0071)	(0.0069)	(0.0071)	(0.0069)	(0.0091)	(0.0088)	(0.0092)	(0.0089)
%Δ	0.7	0.4	0.4	0.2	0.1	0.3	0.3	0.0	0.6	-0.1	-0.1	-0.3	-1.0	-1.4	-1.4	-1.4
%Δ (95% CI – Clustered)	[-0.7, 2.2]	[-0.9, 1.8]	[-0.8, 1.7]	[-1.1, 1.5]	[-1.5, 1.7]	[-1.1, 1.6]	[-1.0, 1.6]	[-1.3, 1.3]	[-1.0, 2.2]	[-1.6, 1.4]	[-1.5, 1.4]	[-1.7, 1.1]	[-2.9, 1.0]	[-3.3, 0.5]	[-3.5, 0.7]	[-3.4, 0.6]
%Δ (95% CI – EHW)	[-0.6, 2.1]	[-0.8, 1.7]	[-0.9, 1.7]	[-1.1, 1.5]	[-1.2, 1.4]	[-1.0, 1.6]	[-1.1, 1.6]	[-1.3, 1.3]	[-0.8, 2.0]	[-1.4, 1.3]	[-1.5, 1.3]	[-1.6, 1.0]	[-2.7, 0.8]	[-3.1, 0.3]	[-3.2, 0.4]	[-3.1, 0.3]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.152]				[0.152]				[0.153]				[0.152]		
Poisson																
NIH × Post April 2008	-0.263	-0.188	-0.132	-0.134	-0.058	-0.107	-0.096	-0.111	-0.258	-0.173	-0.081	-0.124	-0.151	-0.195	-0.059	-0.140
NIH × Post April 2008 × TA	0.246	0.116	0.075	0.033	0.089	0.058	0.047	0.015	0.242	0.096	0.010	0.023	0.176	0.157	0.028	0.074
SE (Clustered)	(0.1462)*	(0.0891)	(0.0884)	(0.0682)	(0.1495)	(0.0882)	(0.0878)	(0.0689)	(0.1195)**	(0.0777)	(0.0752)	(0.0685)	(0.0991)*	(0.1215)	(0.1111)	(0.1254)
SE (EHW)	(0.0527)***	(0.0521)**	(0.0361)**	(0.0361)	(0.0534)*	(0.0528)	(0.0364)	(0.0365)	(0.0566)***	(0.0589)	(0.0381)	(0.0382)	(0.0711)**	(0.0892)*	(0.0476)	(0.0478)
%Δ	27.9	12.3	7.8	3.4	9.3	6.0	4.9	1.5	27.4	10.1	1.0	2.3	19.2	17.0	2.8	7.7
%Δ (95% CI – Clustered)	[-4.0, 70.3]	[-5.7, 33.8]	[-9.3, 28.2]	[-9.5, 18.2]	[-18.4, 46.6]	[-10.8, 26.0]	[-11.7, 24.5]	[-11.3, 16.2]	[0.8, 61.0]	[-5.5, 28.2]	[-12.9, 17.0]	[-10.6, 17.0]	[-1.8, 44.7]	[-7.8, 48.5]	[-17.3, 27.8]	[-15.8, 37.7]
%Δ (95% CI – EHW)	[15.4, 41.8]	[1.4, 24.4]	[0.5, 15.7]	[-3.7, 11.0]	[-1.5, 21.4]	[-4.4, 17.5]	[-2.4, 12.6]	[-5.5, 9.0]	[14.0, 42.3]	[-1.9, 23.6]	[-6.3, 8.8]	[-5.1, 10.2]	[3.7, 37.0]	[-1.8, 39.4]	[-6.3, 12.9]	[-2.0, 18.3]
Observations	6,108,951		5,599,997		4,918,431		4,704,155		3,067,679		2,832,068		1,288,882		1,198,764	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.057	-0.051	-0.036	-0.030	-0.038	-0.041	-0.030	-0.025	-0.049	-0.034	-0.025	-0.019	-0.032	-0.020	-0.018	-0.015
NIH × Post April 2008 × TA	0.041	0.032	0.019	0.011	0.029	0.025	0.016	0.007	0.039	0.018	0.012	0.003	0.033	0.011	0.013	0.003
SE (Clustered)	(0.0149)***	(0.0146)**	(0.0116)*	(0.0108)	(0.0136)**	(0.0124)**	(0.0118)	(0.0108)	(0.0127)***	(0.0126)	(0.0112)	(0.0110)	(0.0158)**	(0.0165)	(0.0171)	(0.0167)
SE (EHW)	(0.0070)***	(0.0068)***	(0.0070)***	(0.0068)	(0.0072)***	(0.0069)***	(0.0072)**	(0.0070)	(0.0075)***	(0.0072)**	(0.0076)	(0.0073)	(0.0095)***	(0.0091)	(0.0096)	(0.0093)
%Δ	27.0	20.9	12.8	7.2	19.1	16.5	10.3	4.7	25.8	11.8	7.7	1.7	21.7	7.5	8.3	2.2
%Δ (95% CI – Clustered)	[7.7, 46.2]	[2.1, 39.7]	[-2.2, 27.7]	[-6.8, 21.1]	[1.5, 36.6]	[0.4, 32.5]	[-4.9, 25.5]	[-9.3, 18.6]	[9.6, 42.1]	[-4.4, 27.9]	[-6.7, 22.1]	[-12.4, 15.8]	[1.4, 42.0]	[-13.7, 28.7]	[-13.7, 30.4]	[-19.4, 23.7]
%Δ (95% CI – EHW)	[17.9, 36.0]	[12.2, 29.7]	[3.7, 21.8]	[-1.7, 16.0]	[9.8, 28.3]	[7.5, 25.4]	[1.0, 19.7]	[-4.4, 13.7]	[16.2, 35.5]	[2.5, 21.0]	[-2.1, 17.5]	[-7.7, 11.1]	[9.5, 34.0]	[-4.2, 19.2]	[-4.1, 20.7]	[-9.7, 14.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.036	-0.032	-0.024	-0.020	-0.024	-0.026	-0.020	-0.017	-0.032	-0.021	-0.017	-0.013	-0.020	-0.012	-0.010	-0.008
NIH × Post April 2008 × TA	0.024	0.018	0.011	0.006	0.016	0.014	0.009	0.003	0.024	0.010	0.006	0.001	0.018	0.005	0.005	-0.000
SE (Clustered)	(0.0081)***	(0.0078)**	(0.0064)*	(0.0059)	(0.0079)**	(0.0067)**	(0.0065)	(0.0059)	(0.0073)***	(0.0070)	(0.0062)	(0.0061)	(0.0091)**	(0.0091)	(0.0097)	(0.0094)
SE (EHW)	(0.0042)***	(0.0041)***	(0.0043)***	(0.0042)	(0.0044)***	(0.0042)***	(0.0044)**	(0.0042)	(0.0045)***	(0.0044)**	(0.0046)	(0.0044)	(0.0057)***	(0.0054)	(0.0058)	(0.0055)
%Δ	2.4	1.8	1.1	0.6	1.6	1.4	0.9	0.3	2.4	1.0	0.6	0.1	1.9	0.5	0.5	-0.0
%Δ (95% CI – Clustered)	[0.8, 4.1]	[0.3, 3.4]	[-0.1, 2.4]	[-0.6, 1.7]	[0.0, 3.2]	[0.1, 2.7]	[-0.4, 2.2]	[-0.8, 1.5]	[1.0, 3.9]	[-0.4, 2.4]	[-0.6, 1.9]	[-1.1, 1.3]	[0.1, 3.7]	[-1.3, 2.3]	[-1.4, 2.5]	[-1.8, 1.8]
%Δ (95% CI – EHW)	[1.6, 3.3]	[1.0, 2.6]	[0.3, 2.0]	[-0.2, 1.4]	[0.7, 2.5]	[0.5, 2.2]	[0.0, 1.7]	[-0.5, 1.2]	[1.5, 3.3]	[0.1, 1.9]	[-0.3, 1.5]	[-0.8, 0.9]	[0.7, 3.0]	[-0.6, 1.5]	[-0.6, 1.7]	[-1.1, 1.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.3.2. Count of Lifetime Cites from Researchers at a Commercial Enterprise (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.496]				[0.496]				[0.499]				[0.497]		
Poisson																
NIH × Post April 2008	-0.034	0.005	-0.010	-0.007	0.103	0.055	0.008	0.009	-0.076	-0.013	0.017	0.010	0.051	0.048	0.096	0.063
NIH × Post April 2008 × TA	0.043	-0.017	0.009	-0.007	-0.074	-0.061	-0.008	-0.024	0.079	0.019	-0.020	-0.015	-0.048	-0.042	-0.097	-0.064
SE (Clustered)	(0.0843)	(0.0684)	(0.0591)	(0.0527)	(0.1157)	(0.0720)	(0.0596)	(0.0535)	(0.0693)	(0.0695)	(0.0621)	(0.0560)	(0.0893)	(0.0877)	(0.1033)	(0.0904)
SE (EHW)	(0.0662)	(0.0686)	(0.0351)	(0.0351)	(0.0675)	(0.0697)	(0.0356)	(0.0356)	(0.0715)	(0.0731)	(0.0372)	(0.0372)	(0.0927)	(0.0914)	(0.0462)**	(0.0463)
%Δ	4.4	-1.7	0.9	-0.7	-7.1	-6.0	-0.8	-2.3	8.3	1.9	-1.9	-1.5	-4.7	-4.1	-9.3	-6.2
%Δ (95% CI – Clustered)	[-11.5, 23.2]	[-14.0, 12.4]	[-10.1, 13.3]	[-10.5, 10.1]	[-26.0, 16.5]	[-18.3, 8.3]	[-11.7, 11.5]	[-12.1, 8.5]	[-5.5, 24.0]	[-11.0, 16.8]	[-13.2, 10.8]	[-11.7, 9.9]	[-20.0, 13.6]	[-19.2, 13.9]	[-25.9, 11.1]	[-21.5, 11.9]
%Δ (95% CI – EHW)	[-8.3, 18.9]	[-14.1, 12.4]	[-5.8, 8.1]	[-7.3, 6.4]	[-18.6, 6.0]	[-18.0, 7.8]	[-7.5, 6.4]	[-8.9, 4.7]	[-5.9, 24.6]	[-11.7, 17.6]	[-8.8, 5.5]	[-8.4, 6.0]	[-20.5, 14.3]	[-19.8, 14.7]	[-17.1, -0.7]	[-14.4, 2.7]
Observations	2,103,480		1,951,967		1,707,823		1,641,950		1,203,393		1,121,071		451,968		422,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.090	-0.081	-0.078	-0.069	-0.046	-0.059	-0.053	-0.044	-0.076	-0.051	-0.049	-0.041	-0.016	-0.000	0.003	0.002
NIH × Post April 2008 × TA	0.018	0.007	0.007	-0.005	-0.007	0.000	-0.003	-0.015	0.024	-0.004	-0.002	-0.012	-0.001	-0.019	-0.020	-0.022
SE (Clustered)	(0.0299)	(0.0294)	(0.0275)	(0.0261)	(0.0307)	(0.0278)	(0.0272)	(0.0254)	(0.0285)	(0.0288)	(0.0267)	(0.0259)	(0.0376)	(0.0375)	(0.0408)	(0.0377)
SE (EHW)	(0.0243)	(0.0236)	(0.0239)	(0.0234)	(0.0250)	(0.0243)	(0.0248)	(0.0241)	(0.0261)	(0.0253)	(0.0260)	(0.0252)	(0.0349)	(0.0336)	(0.0350)	(0.0338)
%Δ	3.7	1.3	1.4	-0.9	-1.4	0.0	-0.5	-3.0	4.9	-0.8	-0.4	-2.5	-0.1	-3.9	-4.1	-4.4
%Δ (95% CI – Clustered)	[-8.2, 15.5]	[-10.3, 13.0]	[-9.5, 12.2]	[-11.3, 9.4]	[-13.5, 10.8]	[-11.0, 11.0]	[-11.3, 10.2]	[-13.0, 7.0]	[-6.3, 16.1]	[-12.2, 10.5]	[-10.9, 10.1]	[-12.6, 7.7]	[-15.0, 14.7]	[-18.7, 10.9]	[-20.2, 12.0]	[-19.2, 10.5]
%Δ (95% CI – EHW)	[-5.9, 13.2]	[-8.0, 10.7]	[-8.1, 10.8]	[-10.2, 8.3]	[-11.3, 8.5]	[-9.6, 9.7]	[-10.3, 9.3]	[-12.5, 6.6]	[-5.4, 15.2]	[-10.8, 9.1]	[-10.6, 9.8]	[-12.4, 7.5]	[-13.9, 13.6]	[-17.1, 9.4]	[-17.9, 9.7]	[-17.7, 9.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.051	-0.047	-0.046	-0.043	-0.027	-0.036	-0.034	-0.031	-0.049	-0.035	-0.034	-0.031	-0.022	-0.014	-0.013	-0.014
NIH × Post April 2008 × TA	0.015	0.009	0.010	0.005	-0.000	0.005	0.005	-0.000	0.020	0.005	0.006	0.002	0.006	-0.003	-0.003	-0.003
SE (Clustered)	(0.0131)	(0.0122)	(0.0115)	(0.0109)	(0.0151)	(0.0117)	(0.0115)	(0.0107)	(0.0129)	(0.0121)	(0.0111)	(0.0106)	(0.0170)	(0.0165)	(0.0178)	(0.0167)
SE (EHW)	(0.0111)	(0.0108)	(0.0109)	(0.0107)	(0.0114)	(0.0111)	(0.0113)	(0.0110)	(0.0119)*	(0.0114)	(0.0117)	(0.0113)	(0.0151)	(0.0144)	(0.0149)	(0.0144)
%Δ	1.5	0.9	1.0	0.5	-0.0	0.5	0.5	-0.0	2.0	0.5	0.6	0.2	0.6	-0.3	-0.3	-0.3
%Δ (95% CI – Clustered)	[-1.1, 4.1]	[-1.5, 3.4]	[-1.2, 3.3]	[-1.6, 2.7]	[-3.0, 3.0]	[-1.7, 2.9]	[-1.8, 2.8]	[-2.1, 2.1]	[-0.5, 4.6]	[-1.9, 2.9]	[-1.6, 2.8]	[-1.9, 2.3]	[-2.7, 4.1]	[-3.5, 3.0]	[-3.7, 3.2]	[-3.5, 3.0]
%Δ (95% CI – EHW)	[-0.7, 3.7]	[-1.2, 3.1]	[-1.1, 3.2]	[-1.6, 2.6]	[-2.3, 2.2]	[-1.6, 2.7]	[-1.7, 2.7]	[-2.2, 2.1]	[-0.3, 4.4]	[-1.7, 2.8]	[-1.7, 2.9]	[-2.0, 2.4]	[-2.3, 3.7]	[-3.1, 2.5]	[-3.2, 2.7]	[-3.1, 2.5]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.640]				[0.640]				[0.643]				[0.642]		
Poisson																
NIH × Post April 2008	-0.210	-0.140	-0.115	-0.103	-0.026	-0.792	-0.095	-0.096	-0.233	-0.161	-0.097	-0.127	-0.172	-0.216	-0.083	-0.164
NIH × Post April 2008 × TA	0.225	0.111	0.087	0.043	0.084	0.240	0.072	0.037	0.254	0.120	0.053	0.054	0.197	0.181	0.054	0.102
SE (Clustered)	(0.1325)*	(0.0682)	(0.0711)	(0.0474)	(0.1420)	(1.0e+06)	(0.0709)	(0.0470)	(0.1170)**	(0.0663)*	(0.0622)	(0.0468)	(0.0779)**	(0.0906)**	(0.0742)	(0.0901)
SE (EHW)	(0.0448)***	(0.0444)**	(0.0217)***	(0.0217)**	(0.0456)*	(2.2e+05)	(0.0220)***	(0.0220)*	(0.0484)***	(0.0515)**	(0.0231)**	(0.0231)**	(0.0600)***	(0.0806)**	(0.0288)*	(0.0289)***
%Δ	25.2	11.7	9.1	4.4	8.8	27.1	7.5	3.7	28.9	12.8	5.4	5.5	21.8	19.9	5.6	10.8
%Δ (95% CI – Clustered)	[-3.4, 62.4]	[-2.3, 27.7]	[-5.1, 25.4]	[-4.9, 14.5]	[-17.6, 43.7]	[-100.0, .]	[-6.5, 23.5]	[-5.4, 13.7]	[2.5, 62.1]	[-1.0, 28.4]	[-6.7, 19.1]	[-3.7, 15.7]	[4.6, 41.9]	[0.4, 43.2]	[-8.7, 22.1]	[-7.1, 32.2]
%Δ (95% CI – EHW)	[14.7, 36.7]	[2.4, 21.8]	[4.5, 13.8]	[0.0, 8.9]	[-0.5, 19.0]	[-100.0, .]	[2.9, 12.2]	[-0.6, 8.3]	[17.2, 41.7]	[1.9, 24.7]	[0.7, 10.3]	[0.9, 10.4]	[8.3, 37.0]	[2.4, 40.4]	[-0.2, 11.7]	[4.7, 17.3]
Observations	6,108,951		5,799,669		4,918,431		4,770,869		3,067,679		2,923,572		1,288,882		1,229,717	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.318	-0.297	-0.241	-0.213	-0.224	-0.231	-0.186	-0.165	-0.244	-0.193	-0.168	-0.142	-0.167	-0.129	-0.119	-0.108
NIH × Post April 2008 × TA	0.119	0.095	0.047	0.016	0.077	0.070	0.032	0.004	0.126	0.064	0.044	0.014	0.135	0.072	0.074	0.046
SE (Clustered)	(0.0476)**	(0.0479)**	(0.0426)	(0.0381)	(0.0430)*	(0.0405)*	(0.0415)	(0.0357)	(0.0408)***	(0.0392)	(0.0374)	(0.0336)	(0.0443)***	(0.0457)	(0.0456)	(0.0445)
SE (EHW)	(0.0210)***	(0.0206)***	(0.0210)**	(0.0205)	(0.0216)***	(0.0211)***	(0.0216)	(0.0211)	(0.0226)***	(0.0219)***	(0.0227)*	(0.0221)	(0.0278)***	(0.0267)***	(0.0279)***	(0.0269)*
%Δ	18.6	14.8	7.3	2.5	12.1	10.9	4.9	0.6	19.6	10.0	6.9	2.2	21.0	11.2	11.5	7.1
%Δ (95% CI – Clustered)	[4.0, 33.1]	[0.1, 29.5]	[-5.7, 20.4]	[-9.1, 14.2]	[-1.1, 25.2]	[-1.5, 23.3]	[-7.8, 17.6]	[-10.4, 11.5]	[7.2, 32.1]	[-2.0, 21.9]	[-4.5, 18.3]	[-8.0, 12.5]	[7.5, 34.5]	[-2.8, 25.2]	[-2.4, 25.5]	[-6.5, 20.7]
%Δ (95% CI – EHW)	[12.1, 25.0]	[8.5, 21.1]	[0.9, 13.7]	[-3.7, 8.8]	[5.4, 18.7]	[4.5, 17.4]	[-1.7, 11.6]	[-5.9, 7.0]	[12.8, 26.5]	[3.3, 16.6]	[-0.0, 13.8]	[-4.5, 8.9]	[12.5, 29.5]	[3.0, 19.4]	[3.0, 20.0]	[-1.1, 15.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.156	-0.144	-0.121	-0.109	-0.108	-0.111	-0.094	-0.084	-0.124	-0.096	-0.086	-0.075	-0.081	-0.062	-0.055	-0.051
NIH × Post April 2008 × TA	0.059	0.047	0.028	0.014	0.035	0.033	0.018	0.005	0.062	0.032	0.024	0.011	0.057	0.028	0.026	0.015
SE (Clustered)	(0.0164)***	(0.0158)***	(0.0160)*	(0.0136)	(0.0176)**	(0.0146)**	(0.0163)	(0.0132)	(0.0165)***	(0.0141)**	(0.0138)*	(0.0118)	(0.0173)***	(0.0166)*	(0.0169)	(0.0163)
SE (EHW)	(0.0073)***	(0.0071)***	(0.0072)***	(0.0070)**	(0.0075)***	(0.0072)***	(0.0074)**	(0.0072)	(0.0078)***	(0.0074)***	(0.0077)***	(0.0075)	(0.0097)***	(0.0093)***	(0.0097)***	(0.0093)
%Δ	6.1	4.8	2.8	1.4	3.6	3.3	1.9	0.6	6.4	3.3	2.4	1.1	5.9	2.9	2.7	1.5
%Δ (95% CI – Clustered)	[2.8, 9.6]	[1.6, 8.1]	[-0.3, 6.1]	[-1.2, 4.2]	[0.1, 7.2]	[0.4, 6.4]	[-1.3, 5.2]	[-2.0, 3.2]	[3.0, 9.9]	[0.4, 6.1]	[-0.3, 5.2]	[-1.2, 3.5]	[2.4, 9.6]	[-0.4, 6.3]	[-0.7, 6.1]	[-1.7, 4.8]
%Δ (95% CI – EHW)	[4.6, 7.6]	[3.4, 6.3]	[1.4, 4.3]	[0.0, 2.8]	[2.1, 5.1]	[1.9, 4.8]	[0.4, 3.4]	[-0.9, 2.0]	[4.8, 8.1]	[1.8, 4.8]	[0.9, 4.0]	[-0.3, 2.6]	[3.9, 7.9]	[1.0, 4.8]	[0.7, 4.6]	[-0.3, 3.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.3.3. Dummy for Positive 2-Year Cites from Researchers at a Commercial Enterprise (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.096]				[0.096]				[0.097]				[0.096]		
Poisson																
NIH × Post April 2008	-0.161	-0.115	-0.122	-0.120	0.003	-0.036	-0.077	-0.078	-0.132	-0.063	-0.034	-0.041	0.042	0.044	0.075	0.051
NIH × Post April 2008 × TA	0.120	0.061	0.075	0.062	-0.024	-0.012	0.032	0.020	0.084	0.016	-0.017	-0.015	-0.093	-0.096	-0.127	-0.108
SE (Clustered)	(0.0931)	(0.0797)	(0.0700)	(0.0707)	(0.1189)	(0.0851)	(0.0729)	(0.0736)	(0.0895)	(0.0890)	(0.0819)	(0.0812)	(0.1118)	(0.1114)	(0.1140)	(0.1093)
SE (EHW)	(0.0680)*	(0.0685)	(0.0714)	(0.0715)	(0.0687)	(0.0692)	(0.0724)	(0.0724)	(0.0721)	(0.0722)	(0.0758)	(0.0758)	(0.0886)	(0.0871)	(0.0936)	(0.0937)
%Δ	12.8	6.3	7.8	6.3	-2.4	-1.2	3.2	2.0	8.8	1.6	-1.7	-1.4	-8.9	-9.1	-11.9	-10.3
%Δ (95% CI – Clustered)	[-6.0, 35.4]	[-9.1, 24.2]	[-6.0, 23.6]	[-7.4, 22.2]	[-22.7, 23.3]	[-16.3, 16.8]	[-10.5, 19.1]	[-11.7, 17.9]	[-8.8, 29.6]	[-14.6, 21.0]	[-16.2, 15.5]	[-15.9, 15.6]	[-26.8, 13.4]	[-27.0, 13.0]	[-29.6, 10.1]	[-27.6, 11.2]
%Δ (95% CI – EHW)	[-1.3, 28.9]	[-7.1, 21.5]	[-6.3, 24.0]	[-7.6, 22.3]	[-14.7, 11.7]	[-13.7, 13.2]	[-10.4, 19.0]	[-11.5, 17.6]	[-5.6, 25.3]	[-11.8, 17.1]	[-15.2, 14.1]	[-15.1, 14.3]	[-23.4, 8.4]	[-23.4, 7.8]	[-26.7, 5.8]	[-25.3, 7.8]
Observations	2,103,480		1,834,952		1,707,823		1,596,886		1,203,393		1,067,550		451,968		406,011	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.012	-0.011	-0.010	-0.009	-0.005	-0.008	-0.008	-0.007	-0.011	-0.006	-0.005	-0.004	0.001	0.005	0.004	0.004
NIH × Post April 2008 × TA	0.008	0.005	0.005	0.004	0.002	0.004	0.004	0.002	0.006	0.001	0.001	-0.001	-0.006	-0.010	-0.009	-0.009
SE (Clustered)	(0.0066)	(0.0061)	(0.0059)	(0.0059)	(0.0075)	(0.0063)	(0.0062)	(0.0063)	(0.0074)	(0.0069)	(0.0068)	(0.0067)	(0.0098)	(0.0096)	(0.0101)	(0.0098)
SE (EHW)	(0.0059)	(0.0058)	(0.0059)	(0.0058)	(0.0061)	(0.0059)	(0.0060)	(0.0059)	(0.0063)	(0.0061)	(0.0063)	(0.0061)	(0.0080)	(0.0077)	(0.0080)	(0.0078)
%Δ	8.1	5.7	5.7	3.8	2.0	3.8	4.0	2.0	6.7	0.7	0.6	-1.0	-6.5	-10.3	-9.6	-9.8
%Δ (95% CI – Clustered)	[-5.4, 21.6]	[-6.9, 18.2]	[-6.4, 17.7]	[-8.3, 15.9]	[-13.4, 17.3]	[-9.1, 16.7]	[-8.7, 16.8]	[-10.8, 14.8]	[-8.3, 21.7]	[-13.4, 14.7]	[-13.3, 14.5]	[-14.7, 12.7]	[-26.5, 13.5]	[-29.7, 9.2]	[-30.2, 10.9]	[-29.7, 10.2]
%Δ (95% CI – EHW)	[-3.9, 20.2]	[-6.1, 17.4]	[-6.3, 17.6]	[-8.0, 15.6]	[-10.4, 14.3]	[-8.3, 15.9]	[-8.3, 16.3]	[-10.1, 14.1]	[-6.1, 19.4]	[-11.7, 13.1]	[-12.1, 13.3]	[-13.4, 11.4]	[-22.7, 9.7]	[-26.0, 5.4]	[-25.9, 6.6]	[-25.6, 6.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.011	-0.009	-0.009	-0.008	-0.005	-0.007	-0.007	-0.006	-0.010	-0.005	-0.005	-0.004	0.001	0.004	0.004	0.004
NIH × Post April 2008 × TA	0.007	0.005	0.005	0.003	0.002	0.003	0.003	0.002	0.006	0.001	0.001	-0.001	-0.005	-0.009	-0.008	-0.008
SE (Clustered)	(0.0058)	(0.0054)	(0.0052)	(0.0052)	(0.0066)	(0.0056)	(0.0055)	(0.0055)	(0.0065)	(0.0061)	(0.0060)	(0.0059)	(0.0087)	(0.0084)	(0.0089)	(0.0087)
SE (EHW)	(0.0052)	(0.0051)	(0.0052)	(0.0051)	(0.0053)	(0.0052)	(0.0053)	(0.0052)	(0.0055)	(0.0054)	(0.0055)	(0.0054)	(0.0070)	(0.0068)	(0.0070)	(0.0069)
%Δ	0.7	0.5	0.5	0.3	0.2	0.3	0.3	0.2	0.6	0.1	0.1	-0.1	-0.5	-0.9	-0.8	-0.8
%Δ (95% CI – Clustered)	[-0.5, 1.8]	[-0.6, 1.6]	[-0.5, 1.5]	[-0.7, 1.4]	[-1.1, 1.5]	[-0.8, 1.4]	[-0.7, 1.4]	[-0.9, 1.3]	[-0.7, 1.9]	[-1.1, 1.3]	[-1.1, 1.2]	[-1.2, 1.1]	[-2.2, 1.2]	[-2.5, 0.8]	[-2.5, 0.9]	[-2.5, 0.9]
%Δ (95% CI – EHW)	[-0.3, 1.7]	[-0.5, 1.5]	[-0.5, 1.5]	[-0.7, 1.3]	[-0.9, 1.2]	[-0.7, 1.4]	[-0.7, 1.4]	[-0.9, 1.2]	[-0.5, 1.7]	[-1.0, 1.1]	[-1.0, 1.1]	[-1.1, 1.0]	[-1.9, 0.8]	[-2.2, 0.5]	[-2.2, 0.6]	[-2.2, 0.5]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.101]				[0.101]				[0.101]				[0.101]		
Poisson																
NIH × Post April 2008	-0.222	-0.134	-0.113	-0.090	-0.037	-0.063	-0.077	-0.063	-0.227	-0.113	-0.059	-0.058	-0.111	-0.080	-0.019	-0.043
NIH × Post April 2008 × TA	0.180	0.057	0.048	-0.009	0.040	0.006	0.019	-0.030	0.188	0.039	-0.014	-0.037	0.114	0.039	-0.014	-0.020
SE (Clustered)	(0.1242)	(0.0656)	(0.0610)	(0.0444)	(0.1277)	(0.0656)	(0.0598)	(0.0432)	(0.0955)**	(0.0564)	(0.0496)	(0.0430)	(0.0831)	(0.0754)	(0.0754)	(0.0740)
SE (EHW)	(0.0411)***	(0.0406)	(0.0434)	(0.0434)	(0.0415)	(0.0411)	(0.0439)	(0.0439)	(0.0437)***	(0.0432)	(0.0461)	(0.0462)	(0.0544)**	(0.0560)	(0.0577)	(0.0577)
%Δ	19.8	5.9	4.9	-0.9	4.1	0.6	2.0	-3.0	20.7	3.9	-1.4	-3.6	12.1	3.9	-1.4	-2.0
%Δ (95% CI – Clustered)	[-6.1, 52.8]	[-6.9, 20.5]	[-7.0, 18.2]	[-9.2, 8.1]	[-19.0, 33.7]	[-11.5, 14.4]	[-9.3, 14.6]	[-10.9, 5.6]	[0.1, 45.5]	[-6.9, 16.1]	[-10.6, 8.6]	[-11.4, 4.9]	[-4.8, 31.9]	[-10.3, 20.5]	[-15.0, 14.3]	[-15.2, 13.3]
%Δ (95% CI – EHW)	[10.5, 29.8]	[-2.2, 14.7]	[-3.7, 14.2]	[-9.0, 7.9]	[-4.0, 12.9]	[-7.2, 9.0]	[-6.5, 11.1]	[-11.0, 5.7]	[10.8, 31.5]	[-4.5, 13.1]	[-10.0, 7.9]	[-11.9, 5.5]	[0.7, 24.7]	[-6.9, 16.0]	[-11.9, 10.4]	[-12.5, 9.7]
Observations	6,108,951		5,599,997		4,918,431		4,704,155		3,067,679		2,832,068		1,288,882		1,198,764	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.029	-0.025	-0.019	-0.016	-0.018	-0.020	-0.016	-0.013	-0.026	-0.017	-0.013	-0.010	-0.016	-0.008	-0.007	-0.006
NIH × Post April 2008 × TA	0.018	0.013	0.008	0.004	0.011	0.009	0.006	0.001	0.018	0.006	0.003	-0.001	0.013	0.002	0.002	-0.002
SE (Clustered)	(0.0055)***	(0.0049)**	(0.0045)*	(0.0040)	(0.0061)*	(0.0044)**	(0.0047)	(0.0040)	(0.0054)***	(0.0047)	(0.0043)	(0.0041)	(0.0070)*	(0.0064)	(0.0068)	(0.0065)
SE (EHW)	(0.0036)***	(0.0035)***	(0.0036)**	(0.0036)	(0.0037)***	(0.0036)**	(0.0037)	(0.0036)	(0.0039)***	(0.0037)*	(0.0039)	(0.0038)	(0.0048)***	(0.0047)	(0.0049)	(0.0048)
%Δ	17.6	12.5	7.8	3.5	10.6	8.9	5.7	1.2	17.7	6.3	3.4	-0.8	13.3	2.3	2.4	-1.6
%Δ (95% CI – Clustered)	[6.9, 28.2]	[3.0, 22.1]	[-1.0, 16.6]	[-4.3, 11.3]	[-1.3, 22.5]	[0.3, 17.5]	[-3.4, 14.9]	[-6.5, 9.0]	[7.2, 28.2]	[-2.8, 15.3]	[-5.0, 11.7]	[-8.7, 7.1]	[-0.2, 26.7]	[-10.1, 14.7]	[-10.8, 15.7]	[-14.4, 11.1]
%Δ (95% CI – EHW)	[10.5, 24.6]	[5.7, 19.4]	[0.7, 14.9]	[-3.5, 10.4]	[3.4, 17.8]	[1.9, 16.0]	[-1.5, 13.0]	[-5.9, 8.4]	[10.2, 25.2]	[-1.0, 13.5]	[-4.1, 10.9]	[-8.1, 6.5]	[3.9, 22.6]	[-6.7, 11.4]	[-7.0, 11.9]	[-10.9, 7.6]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.026	-0.022	-0.017	-0.014	-0.016	-0.017	-0.014	-0.012	-0.023	-0.015	-0.011	-0.009	-0.014	-0.007	-0.006	-0.005
NIH × Post April 2008 × TA	0.016	0.011	0.007	0.003	0.009	0.008	0.005	0.001	0.016	0.006	0.003	-0.001	0.012	0.002	0.002	-0.001
SE (Clustered)	(0.0048)***	(0.0043)**	(0.0040)*	(0.0035)	(0.0054)*	(0.0039)**	(0.0041)	(0.0035)	(0.0048)***	(0.0041)	(0.0038)	(0.0036)	(0.0061)*	(0.0056)	(0.0060)	(0.0058)
SE (EHW)	(0.0032)***	(0.0031)***	(0.0032)**	(0.0031)	(0.0033)***	(0.0032)**	(0.0033)	(0.0032)	(0.0034)***	(0.0033)*	(0.0034)	(0.0033)	(0.0043)***	(0.0041)	(0.0043)	(0.0042)
%Δ	1.6	1.1	0.7	0.3	0.9	0.8	0.5	0.1	1.6	0.6	0.3	-0.1	1.2	0.2	0.2	-0.1
%Δ (95% CI – Clustered)	[0.6, 2.5]	[0.3, 2.0]	[-0.1, 1.5]	[-0.4, 1.0]	[-0.1, 2.0]	[0.0, 1.6]	[-0.3, 1.3]	[-0.6, 0.8]	[0.6, 2.5]	[-0.2, 1.4]	[-0.4, 1.1]	[-0.8, 0.6]	[-0.0, 2.4]	[-0.9, 1.3]	[-1.0, 1.4]	[-1.3, 1.0]
%Δ (95% CI – EHW)	[0.9, 2.2]	[0.5, 1.7]	[0.1, 1.3]	[-0.3, 0.9]	[0.3, 1.6]	[0.2, 1.4]	[-0.1, 1.2]	[-0.5, 0.7]	[0.9, 2.3]	[-0.1, 1.2]	[-0.4, 1.0]	[-0.7, 0.6]	[0.3, 2.0]	[-0.6, 1.0]	[-0.6, 1.1]	[-1.0, 0.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table J.3.4. Dummy for Lifetime Cites from Researchers at a Commercial Enterprise (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.226]				[0.226]				[0.227]				[0.227]		
Poisson																
NIH × Post April 2008	-0.052	-0.011	-0.045	-0.039	0.060	0.020	-0.035	-0.032	-0.123	-0.054	-0.050	-0.050	-0.072	-0.057	-0.040	-0.057
NIH × Post April 2008 × TA	0.058	0.010	0.046	0.031	-0.040	-0.019	0.032	0.021	0.113	0.047	0.036	0.034	0.052	0.036	0.019	0.032
SE (Clustered)	(0.0750)	(0.0517)	(0.0407)	(0.0402)	(0.1066)	(0.0595)	(0.0423)	(0.0418)	(0.0617)*	(0.0552)	(0.0474)	(0.0472)	(0.0700)	(0.0693)	(0.0696)	(0.0682)
SE (EHW)	(0.0426)	(0.0435)	(0.0476)	(0.0477)	(0.0433)	(0.0440)	(0.0485)	(0.0485)	(0.0455)**	(0.0458)	(0.0508)	(0.0509)	(0.0570)	(0.0556)	(0.0640)	(0.0640)
%Δ	5.9	1.0	4.7	3.2	-3.9	-1.8	3.3	2.1	11.9	4.8	3.7	3.5	5.3	3.7	2.0	3.2
%Δ (95% CI – Clustered)	[-8.6, 22.7]	[-8.7, 11.8]	[-3.4, 13.4]	[-4.6, 11.6]	[-22.0, 18.4]	[-12.6, 10.3]	[-4.9, 12.2]	[-5.9, 10.8]	[-0.8, 26.3]	[-5.9, 16.8]	[-5.5, 13.8]	[-5.7, 13.5]	[-8.2, 20.8]	[-9.5, 18.8]	[-11.0, 16.9]	[-9.7, 18.0]
%Δ (95% CI – EHW)	[-2.6, 15.2]	[-7.2, 10.0]	[-4.7, 14.9]	[-6.0, 13.3]	[-11.7, 4.6]	[-10.0, 7.0]	[-6.1, 13.6]	[-7.2, 12.3]	[2.4, 22.3]	[-4.2, 14.6]	[-6.2, 14.5]	[-6.4, 14.3]	[-5.8, 17.7]	[-7.0, 15.6]	[-10.1, 15.6]	[-9.0, 17.0]
Observations	2,103,480		1,951,967		1,707,823		1,641,950		1,203,393		1,121,071		451,968		422,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.036	-0.032	-0.033	-0.031	-0.018	-0.025	-0.025	-0.023	-0.036	-0.026	-0.026	-0.024	-0.023	-0.017	-0.017	-0.018
NIH × Post April 2008 × TA	0.013	0.009	0.010	0.007	0.000	0.006	0.006	0.003	0.017	0.007	0.008	0.005	0.012	0.006	0.007	0.007
SE (Clustered)	(0.0093)	(0.0079)	(0.0079)	(0.0076)	(0.0118)	(0.0080)	(0.0081)	(0.0077)	(0.0099)*	(0.0085)	(0.0085)	(0.0082)	(0.0129)	(0.0124)	(0.0130)	(0.0127)
SE (EHW)	(0.0082)	(0.0080)	(0.0081)	(0.0079)	(0.0084)	(0.0082)	(0.0083)	(0.0082)	(0.0087)**	(0.0085)	(0.0086)	(0.0084)	(0.0110)	(0.0106)	(0.0109)	(0.0106)
%Δ	5.6	3.8	4.5	3.1	0.2	2.5	2.8	1.4	7.7	2.9	3.3	2.2	5.5	2.5	2.9	2.9
%Δ (95% CI – Clustered)	[-2.5, 13.6]	[-3.0, 10.7]	[-2.4, 11.4]	[-3.5, 9.6]	[-10.0, 10.4]	[-4.5, 9.4]	[-4.3, 9.8]	[-5.3, 8.1]	[-0.9, 16.2]	[-4.4, 10.2]	[-4.0, 10.6]	[-4.8, 9.3]	[-5.7, 16.7]	[-8.2, 13.2]	[-8.3, 14.1]	[-8.1, 13.9]
%Δ (95% CI – EHW)	[-1.5, 12.7]	[-3.1, 10.8]	[-2.5, 11.5]	[-3.8, 9.9]	[-7.1, 7.5]	[-4.7, 9.6]	[-4.4, 10.0]	[-5.7, 8.5]	[0.1, 15.2]	[-4.4, 10.2]	[-4.1, 10.8]	[-5.1, 9.5]	[-4.1, 15.0]	[-6.7, 11.7]	[-6.5, 12.3]	[-6.3, 12.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.032	-0.029	-0.029	-0.027	-0.016	-0.022	-0.022	-0.020	-0.032	-0.023	-0.023	-0.021	-0.021	-0.015	-0.015	-0.016
NIH × Post April 2008 × TA	0.011	0.008	0.009	0.006	0.000	0.005	0.006	0.003	0.015	0.006	0.007	0.004	0.011	0.005	0.006	0.006
SE (Clustered)	(0.0082)	(0.0069)	(0.0070)	(0.0067)	(0.0104)	(0.0070)	(0.0072)	(0.0068)	(0.0087)*	(0.0075)	(0.0075)	(0.0072)	(0.0114)	(0.0109)	(0.0114)	(0.0112)
SE (EHW)	(0.0072)	(0.0070)	(0.0071)	(0.0070)	(0.0074)	(0.0072)	(0.0073)	(0.0072)	(0.0077)**	(0.0075)	(0.0076)	(0.0074)	(0.0097)	(0.0094)	(0.0096)	(0.0094)
%Δ	1.1	0.8	0.9	0.6	0.0	0.5	0.6	0.3	1.5	0.6	0.7	0.4	1.1	0.5	0.6	0.6
%Δ (95% CI – Clustered)	[-0.5, 2.7]	[-0.6, 2.1]	[-0.5, 2.3]	[-0.7, 1.9]	[-2.0, 2.1]	[-0.9, 1.9]	[-0.8, 2.0]	[-1.1, 1.6]	[-0.2, 3.3]	[-0.9, 2.1]	[-0.8, 2.1]	[-1.0, 1.9]	[-1.1, 3.4]	[-1.6, 2.7]	[-1.6, 2.9]	[-1.6, 2.8]
%Δ (95% CI – EHW)	[-0.3, 2.6]	[-0.6, 2.2]	[-0.5, 2.3]	[-0.8, 2.0]	[-1.4, 1.5]	[-0.9, 1.9]	[-0.9, 2.0]	[-1.1, 1.7]	[0.0, 3.1]	[-0.9, 2.1]	[-0.8, 2.2]	[-1.0, 1.9]	[-0.8, 3.0]	[-1.3, 2.4]	[-1.3, 2.5]	[-1.2, 2.5]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.263]				[0.263]				[0.264]				[0.264]		
Poisson																
NIH × Post April 2008	-0.129	-0.035	-0.069	-0.033	0.016	-0.001	-0.058	-0.030	-0.199	-0.087	-0.076	-0.058	-0.140	-0.094	-0.052	-0.061
NIH × Post April 2008 × TA	0.158	0.051	0.083	0.025	0.047	0.024	0.070	0.019	0.209	0.075	0.056	0.025	0.159	0.081	0.042	0.029
SE (Clustered)	(0.1092)	(0.0496)	(0.0446)*	(0.0298)	(0.1191)	(0.0533)	(0.0443)	(0.0287)	(0.0849)**	(0.0458)	(0.0382)	(0.0289)	(0.0623)**	(0.0487)*	(0.0508)	(0.0480)
SE (EHW)	(0.0265)***	(0.0262)*	(0.0299)***	(0.0298)	(0.0269)*	(0.0266)	(0.0303)**	(0.0302)	(0.0284)***	(0.0280)***	(0.0319)*	(0.0319)	(0.0354)***	(0.0353)**	(0.0399)	(0.0399)
%Δ	17.1	5.2	8.6	2.6	4.8	2.4	7.3	1.9	23.3	7.8	5.8	2.5	17.2	8.4	4.3	2.9
%Δ (95% CI – Clustered)	[-5.4, 45.1]	[-4.5, 16.0]	[-0.5, 18.5]	[-3.2, 8.8]	[-17.0, 32.3]	[-7.7, 13.7]	[-1.7, 17.0]	[-3.7, 7.8]	[4.4, 45.6]	[-1.5, 17.9]	[-1.8, 14.0]	[-3.1, 8.5]	[3.7, 32.4]	[-1.4, 19.3]	[-5.6, 15.2]	[-6.3, 13.1]
%Δ (95% CI – EHW)	[11.2, 23.4]	[-0.0, 10.8]	[2.4, 15.2]	[-3.2, 8.8]	[-0.6, 10.5]	[-2.8, 7.9]	[1.1, 13.8]	[-4.0, 8.1]	[16.6, 30.3]	[2.0, 13.9]	[-0.6, 12.6]	[-3.7, 9.1]	[9.3, 25.6]	[1.2, 16.2]	[-3.6, 12.8]	[-4.8, 11.3]
Observations	6,108,951		5,799,669		4,918,431		4,770,869		3,067,679		2,923,572		1,288,882		1,229,717	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.101	-0.092	-0.079	-0.071	-0.067	-0.069	-0.060	-0.054	-0.082	-0.061	-0.056	-0.049	-0.054	-0.041	-0.036	-0.033
NIH × Post April 2008 × TA	0.040	0.031	0.021	0.012	0.022	0.021	0.014	0.005	0.043	0.022	0.017	0.009	0.039	0.020	0.018	0.011
SE (Clustered)	(0.0103)***	(0.0085)***	(0.0099)**	(0.0083)	(0.0127)*	(0.0089)**	(0.0104)	(0.0082)	(0.0118)***	(0.0085)**	(0.0086)*	(0.0072)	(0.0110)***	(0.0091)**	(0.0091)*	(0.0087)
SE (EHW)	(0.0050)***	(0.0049)***	(0.0050)***	(0.0049)**	(0.0052)***	(0.0050)***	(0.0051)***	(0.0050)	(0.0053)***	(0.0052)***	(0.0053)***	(0.0052)*	(0.0067)***	(0.0065)***	(0.0067)***	(0.0066)*
%Δ	15.2	11.9	7.9	4.4	8.4	8.0	5.3	1.9	16.1	8.2	6.4	3.4	14.8	7.7	6.7	4.2
%Δ (95% CI – Clustered)	[7.5, 22.9]	[5.5, 18.2]	[0.6, 15.3]	[-1.7, 10.6]	[-1.0, 17.9]	[1.3, 14.6]	[-2.5, 13.0]	[-4.2, 8.0]	[7.3, 24.9]	[1.9, 14.5]	[-0.0, 12.8]	[-1.9, 8.8]	[6.6, 23.0]	[0.9, 14.4]	[-0.1, 13.5]	[-2.3, 10.7]
%Δ (95% CI – EHW)	[11.5, 18.9]	[8.2, 15.5]	[4.2, 11.7]	[0.8, 8.1]	[4.6, 12.3]	[4.2, 11.7]	[1.4, 9.1]	[-1.9, 5.6]	[12.1, 20.1]	[4.3, 12.0]	[2.4, 10.3]	[-0.5, 7.3]	[9.8, 19.8]	[2.9, 12.5]	[1.7, 11.6]	[-0.7, 9.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.089	-0.081	-0.069	-0.062	-0.059	-0.061	-0.053	-0.047	-0.072	-0.054	-0.049	-0.043	-0.048	-0.036	-0.031	-0.029
NIH × Post April 2008 × TA	0.035	0.028	0.018	0.010	0.020	0.018	0.012	0.004	0.037	0.019	0.015	0.008	0.034	0.018	0.015	0.010
SE (Clustered)	(0.0091)***	(0.0075)***	(0.0087)**	(0.0073)	(0.0112)*	(0.0079)**	(0.0091)	(0.0072)	(0.0104)***	(0.0075)**	(0.0076)*	(0.0063)	(0.0097)***	(0.0080)**	(0.0081)*	(0.0077)
SE (EHW)	(0.0044)***	(0.0043)***	(0.0044)***	(0.0043)**	(0.0045)***	(0.0044)***	(0.0045)***	(0.0044)	(0.0047)***	(0.0046)***	(0.0047)***	(0.0046)*	(0.0059)***	(0.0057)***	(0.0059)***	(0.0058)*
%Δ	3.6	2.8	1.9	1.0	2.0	1.9	1.2	0.4	3.8	1.9	1.5	0.8	3.5	1.8	1.6	1.0
%Δ (95% CI – Clustered)	[1.8, 5.4]	[1.3, 4.3]	[0.1, 3.6]	[-0.4, 2.5]	[-0.2, 4.2]	[0.3, 3.4]	[-0.6, 3.1]	[-1.0, 1.9]	[1.7, 6.0]	[0.4, 3.4]	[-0.0, 3.0]	[-0.4, 2.1]	[1.6, 5.5]	[0.2, 3.4]	[-0.0, 3.2]	[-0.5, 2.5]
%Δ (95% CI – EHW)	[2.7, 4.5]	[1.9, 3.7]	[1.0, 2.7]	[0.2, 1.9]	[1.1, 2.9]	[1.0, 2.8]	[0.3, 2.1]	[-0.4, 1.3]	[2.9, 4.8]	[1.0, 2.8]	[0.6, 2.4]	[-0.1, 1.7]	[2.3, 4.7]	[0.7, 2.9]	[0.4, 2.7]	[-0.2, 2.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations from researchers at a commercial enterprise. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

K Results for Citation Outcomes from Researchers in Poor/Developing Countries

Table K.1.1. Count of 2-Year Cites from Researchers in a Poor/Developing Country (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.158]				[0.158]				[0.159]				[0.159]		
Poisson																
NIH × Post April 2008	-0.168	-0.111	-0.141	-0.124	-0.115	-0.071	-0.108	-0.092	-0.168	-0.114	-0.158	-0.110	-0.118	-0.072	-0.113	-0.059
SE (Clustered)	(0.0443)***	(0.0430)**	(0.0417)***	(0.0386)***	(0.0462)**	(0.0454)	(0.0398)***	(0.0362)**	(0.0348)***	(0.0352)***	(0.0336)***	(0.0337)***	(0.0711)*	(0.0738)	(0.0720)	(0.0693)
SE (EHW)	(0.0374)***	(0.0372)***	(0.0135)***	(0.0135)***	(0.0398)***	(0.0400)*	(0.0136)***	(0.0136)***	(0.0284)***	(0.0294)***	(0.0142)***	(0.0143)***	(0.0686)*	(0.0715)	(0.0180)***	(0.0180)***
%Δ	-15.5	-10.5	-13.2	-11.7	-10.8	-6.8	-10.2	-8.8	-15.4	-10.8	-14.6	-10.4	-11.1	-6.9	-10.7	-5.8
%Δ (95% CI – Clustered)	[-22.5, -7.8]	[-17.7, -2.6]	[-20.0, -5.8]	[-18.1, -4.7]	[-18.5, -2.4]	[-14.8, 1.8]	[-17.0, -3.0]	[-15.0, -2.0]	[-21.0, -9.5]	[-16.8, -4.4]	[-20.0, -8.8]	[-16.2, -4.3]	[-22.7, 2.2]	[-19.4, 7.6]	[-22.4, 2.9]	[-17.7, 7.9]
%Δ (95% CI – EHW)	[-21.4, -9.0]	[-16.8, -3.7]	[-15.4, -10.8]	[-14.0, -9.3]	[-17.5, -3.6]	[-13.9, 0.8]	[-12.6, -7.8]	[-11.2, -6.3]	[-20.0, -10.6]	[-15.8, -5.5]	[-16.9, -12.2]	[-12.9, -7.9]	[-22.3, 1.7]	[-19.1, 7.1]	[-13.8, -7.5]	[-9.0, -2.4]
Observations	2,103,480		1,923,965		1,707,823		1,620,116		1,203,393		1,097,390		451,968		410,990	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.032	-0.028	-0.029	-0.028	-0.016	-0.012	-0.014	-0.012	-0.024	-0.020	-0.023	-0.019	-0.004	0.002	-0.003	0.002
SE (Clustered)	(0.0060)***	(0.0061)***	(0.0061)***	(0.0060)***	(0.0068)**	(0.0068)*	(0.0065)**	(0.0064)*	(0.0050)***	(0.0050)***	(0.0050)***	(0.0049)***	(0.0075)	(0.0076)	(0.0075)	(0.0075)
SE (EHW)	(0.0044)***	(0.0044)***	(0.0044)***	(0.0044)***	(0.0053)***	(0.0053)**	(0.0048)***	(0.0048)**	(0.0032)***	(0.0032)***	(0.0031)***	(0.0031)***	(0.0067)	(0.0067)	(0.0066)	(0.0067)
%Δ	-20.3	-17.7	-18.5	-17.9	-10.4	-7.6	-8.8	-7.7	-15.2	-12.7	-14.2	-12.1	-2.2	1.0	-1.6	1.1
%Δ (95% CI – Clustered)	[-27.8, -12.9]	[-25.2, -10.1]	[-26.0, -10.9]	[-25.4, -10.4]	[-18.8, -2.0]	[-16.1, 0.9]	[-16.8, -0.8]	[-15.7, 0.3]	[-21.3, -9.0]	[-18.9, -6.6]	[-20.3, -8.1]	[-18.2, -6.0]	[-11.5, 7.1]	[-8.3, 10.3]	[-10.8, 7.7]	[-8.1, 10.4]
%Δ (95% CI – EHW)	[-25.8, -14.9]	[-23.2, -12.2]	[-24.0, -13.0]	[-23.4, -12.5]	[-17.0, -3.8]	[-14.2, -1.0]	[-14.8, -2.8]	[-13.7, -1.8]	[-19.1, -11.3]	[-16.6, -8.8]	[-18.0, -10.3]	[-15.9, -8.2]	[-10.4, 6.0]	[-7.3, 9.3]	[-9.7, 6.6]	[-7.1, 9.4]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.025	-0.022	-0.023	-0.023	-0.015	-0.012	-0.013	-0.012	-0.017	-0.014	-0.016	-0.013	0.002	0.006	0.003	0.006
SE (Clustered)	(0.0031)***	(0.0030)***	(0.0030)***	(0.0030)***	(0.0031)***	(0.0031)***	(0.0031)***	(0.0031)***	(0.0029)***	(0.0029)***	(0.0029)***	(0.0028)***	(0.0030)	(0.0029)*	(0.0030)	(0.0029)**
SE (EHW)	(0.0014)***	(0.0013)***	(0.0013)***	(0.0013)***	(0.0014)***	(0.0014)***	(0.0014)***	(0.0013)***	(0.0015)***	(0.0014)***	(0.0014)***	(0.0014)***	(0.0020)	(0.0019)***	(0.0019)	(0.0019)***
%Δ	-2.5	-2.2	-2.3	-2.2	-1.5	-1.2	-1.3	-1.2	-1.7	-1.4	-1.5	-1.3	0.2	0.6	0.3	0.6
%Δ (95% CI – Clustered)	[-3.1, -1.9]	[-2.8, -1.6]	[-2.9, -1.7]	[-2.8, -1.7]	[-2.1, -0.9]	[-1.8, -0.6]	[-1.9, -0.7]	[-1.8, -0.6]	[-2.2, -1.1]	[-1.9, -0.8]	[-2.1, -1.0]	[-1.9, -0.8]	[-0.4, 0.8]	[-0.0, 1.1]	[-0.3, 0.9]	[0.0, 1.2]
%Δ (95% CI – EHW)	[-2.8, -2.3]	[-2.5, -2.0]	[-2.6, -2.1]	[-2.5, -2.0]	[-1.8, -1.2]	[-1.5, -0.9]	[-1.6, -1.0]	[-1.4, -0.9]	[-1.9, -1.4]	[-1.7, -1.1]	[-1.8, -1.3]	[-1.6, -1.0]	[-0.2, 0.6]	[0.2, 0.9]	[-0.1, 0.7]	[0.2, 1.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.165]				[0.165]				[0.166]				[0.167]		
Poisson																
NIH × Post April 2008	-0.190	-0.038	-0.142	-0.059	-0.122	-0.007	-0.112	-0.029	-0.181	-0.049	-0.164	-0.040	-0.049	0.056	-0.050	0.050
SE (Clustered)	(0.0333)***	(0.0317)	(0.0296)***	(0.0279)**	(0.0332)***	(0.0318)	(0.0298)***	(0.0279)	(0.0298)***	(0.0284)*	(0.0249)***	(0.0248)	(0.0403)	(0.0416)	(0.0389)	(0.0408)
SE (EHW)	(0.0175)***	(0.0171)**	(0.0080)***	(0.0081)***	(0.0180)***	(0.0175)	(0.0081)***	(0.0081)***	(0.0173)***	(0.0179)***	(0.0086)***	(0.0087)***	(0.0327)	(0.0343)	(0.0106)***	(0.0107)***
%Δ	-17.3	-3.8	-13.2	-5.8	-11.5	-0.7	-10.6	-2.8	-16.6	-4.8	-15.1	-3.9	-4.8	5.8	-4.9	5.1
%Δ (95% CI – Clustered)	[-22.6, -11.7]	[-9.5, 2.4]	[-18.1, -8.1]	[-10.8, -0.5]	[-17.1, -5.5]	[-6.7, 5.6]	[-15.6, -5.2]	[-8.0, 2.6]	[-21.3, -11.5]	[-9.9, 0.7]	[-19.1, -10.9]	[-8.4, 0.9]	[-12.0, 3.1]	[-2.5, 14.8]	[-11.9, 2.6]	[-3.0, 13.8]
%Δ (95% CI – EHW)	[-20.1, -14.4]	[-6.9, -0.5]	[-14.6, -11.9]	[-7.2, -4.3]	[-14.6, -8.3]	[-4.1, 2.7]	[-12.0, -9.1]	[-4.4, -1.3]	[-19.3, -13.7]	[-8.1, -1.4]	[-16.5, -13.7]	[-5.5, -2.2]	[-10.7, 1.5]	[-1.1, 13.2]	[-6.9, -2.9]	[2.9, 7.3]
Observations	6,108,951		5,748,131		4,918,431		4,745,695		3,067,679		2,888,474		1,288,882		1,213,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.036	-0.024	-0.030	-0.025	-0.018	-0.007	-0.016	-0.008	-0.023	-0.009	-0.021	-0.008	0.006	0.019	0.006	0.017
SE (Clustered)	(0.0047)***	(0.0048)***	(0.0046)***	(0.0047)***	(0.0049)***	(0.0051)	(0.0048)***	(0.0050)*	(0.0042)***	(0.0043)**	(0.0041)***	(0.0041)**	(0.0048)	(0.0048)***	(0.0047)	(0.0047)***
SE (EHW)	(0.0018)***	(0.0018)***	(0.0018)***	(0.0018)***	(0.0020)***	(0.0020)***	(0.0019)***	(0.0019)***	(0.0017)***	(0.0017)***	(0.0017)***	(0.0017)***	(0.0032)*	(0.0032)***	(0.0033)*	(0.0033)***
%Δ	-21.8	-14.4	-18.0	-15.0	-11.0	-4.1	-9.5	-5.0	-13.8	-5.5	-12.5	-5.1	3.4	11.1	3.3	10.2
%Δ (95% CI – Clustered)	[-27.4, -16.3]	[-20.1, -8.6]	[-23.5, -12.5]	[-20.6, -9.4]	[-16.8, -5.3]	[-10.2, 1.9]	[-15.2, -3.8]	[-10.9, 0.9]	[-18.8, -8.8]	[-10.6, -0.4]	[-17.3, -7.7]	[-10.0, -0.2]	[-2.1, 9.0]	[5.5, 16.7]	[-2.3, 8.9]	[4.6, 15.7]
%Δ (95% CI – EHW)	[-23.9, -19.7]	[-16.5, -12.2]	[-20.1, -15.9]	[-17.1, -12.9]	[-13.4, -8.7]	[-6.5, -1.8]	[-11.8, -7.2]	[-7.3, -2.7]	[-15.9, -11.8]	[-7.5, -3.4]	[-14.6, -10.5]	[-7.1, -3.0]	[-0.3, 7.2]	[7.4, 14.8]	[-0.6, 7.2]	[6.3, 14.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.028	-0.020	-0.024	-0.020	-0.016	-0.009	-0.014	-0.009	-0.017	-0.008	-0.016	-0.008	0.005	0.013	0.005	0.012
SE (Clustered)	(0.0030)***	(0.0031)***	(0.0029)***	(0.0029)***	(0.0031)***	(0.0031)***	(0.0029)***	(0.0030)***	(0.0027)***	(0.0027)***	(0.0026)***	(0.0025)***	(0.0025)**	(0.0025)***	(0.0023)**	(0.0024)***
SE (EHW)	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0008)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***
%Δ	-2.8	-2.0	-2.3	-2.0	-1.6	-0.8	-1.4	-0.9	-1.7	-0.8	-1.5	-0.8	0.5	1.3	0.5	1.2
%Δ (95% CI – Clustered)	[-3.4, -2.2]	[-2.6, -1.4]	[-2.9, -1.8]	[-2.6, -1.4]	[-2.2, -1.0]	[-1.5, -0.2]	[-2.0, -0.8]	[-1.5, -0.3]	[-2.3, -1.2]	[-1.3, -0.3]	[-2.0, -1.1]	[-1.2, -0.3]	[0.0, 1.0]	[0.8, 1.8]	[0.1, 1.0]	[0.8, 1.7]
%Δ (95% CI – EHW)	[-2.9, -2.6]	[-2.1, -1.8]	[-2.5, -2.2]	[-2.1, -1.9]	[-1.8, -1.4]	[-1.0, -0.7]	[-1.5, -1.2]	[-1.1, -0.8]	[-1.9, -1.6]	[-1.0, -0.6]	[-1.7, -1.4]	[-0.9, -0.6]	[0.3, 0.7]	[1.1, 1.6]	[0.3, 0.7]	[1.0, 1.5]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.1.2. Count of Lifetime Cites from Researchers in a Poor/Developing Country (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.474]				[0.474]				[0.477]				[0.479]		
Poisson																
NIH × Post April 2008	-0.049	-0.008	-0.038	-0.032	-0.013	0.013	-0.026	-0.020	-0.084	-0.044	-0.080	-0.049	-0.063	-0.023	-0.058	-0.020
SE (Clustered)	(0.0327)	(0.0321)	(0.0317)	(0.0300)	(0.0340)	(0.0338)	(0.0306)	(0.0286)	(0.0301)***	(0.0295)	(0.0288)***	(0.0281)*	(0.0443)	(0.0446)	(0.0446)	(0.0427)
SE (EHW)	(0.0303)	(0.0300)	(0.0073)***	(0.0073)***	(0.0315)	(0.0314)	(0.0074)***	(0.0074)***	(0.0271)***	(0.0272)	(0.0078)***	(0.0078)***	(0.0431)	(0.0440)	(0.0100)***	(0.0100)**
%Δ	-4.8	-0.8	-3.7	-3.2	-1.3	1.3	-2.5	-1.9	-8.1	-4.3	-7.7	-4.8	-6.1	-2.2	-5.6	-2.0
%Δ (95% CI – Clustered)	[-10.7, 1.5]	[-6.9, 5.6]	[-9.5, 2.4]	[-8.7, 2.7]	[-7.7, 5.5]	[-5.2, 8.2]	[-8.2, 3.5]	[-7.3, 3.7]	[-13.3, -2.5]	[-9.7, 1.4]	[-12.8, -2.4]	[-9.9, 0.6]	[-13.9, 2.4]	[-10.4, 6.7]	[-13.5, 3.0]	[-9.9, 6.5]
%Δ (95% CI – EHW)	[-10.3, 1.0]	[-6.5, 5.2]	[-5.1, -2.4]	[-4.5, -1.8]	[-7.2, 4.9]	[-4.7, 7.7]	[-3.9, -1.1]	[-3.3, -0.5]	[-12.8, -3.1]	[-9.3, 0.9]	[-9.1, -6.3]	[-6.3, -3.4]	[-13.7, 2.2]	[-10.3, 6.5]	[-7.4, -3.8]	[-3.9, -0.1]
Observations	2,103,480		1,985,494		1,707,823		1,650,425		1,203,393		1,136,891		451,968		426,040	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.065	-0.057	-0.061	-0.062	-0.030	-0.023	-0.029	-0.028	-0.057	-0.049	-0.054	-0.049	-0.020	-0.008	-0.018	-0.008
SE (Clustered)	(0.0148)***	(0.0150)***	(0.0148)***	(0.0147)***	(0.0158)*	(0.0160)	(0.0153)*	(0.0152)*	(0.0141)***	(0.0140)***	(0.0139)***	(0.0138)***	(0.0174)	(0.0172)	(0.0176)	(0.0174)
SE (EHW)	(0.0123)***	(0.0124)***	(0.0124)***	(0.0123)***	(0.0134)**	(0.0134)*	(0.0129)**	(0.0128)**	(0.0115)***	(0.0115)***	(0.0116)***	(0.0115)***	(0.0161)	(0.0161)	(0.0164)	(0.0164)
%Δ	-13.8	-12.1	-12.9	-13.0	-6.4	-4.9	-6.1	-5.9	-11.9	-10.4	-11.4	-10.2	-4.1	-1.6	-3.7	-1.7
%Δ (95% CI – Clustered)	[-19.9, -7.7]	[-18.3, -5.9]	[-19.0, -6.7]	[-19.1, -6.9]	[-12.9, 0.2]	[-11.6, 1.7]	[-12.4, 0.2]	[-12.1, 0.4]	[-17.7, -6.1]	[-16.1, -4.6]	[-17.1, -5.7]	[-15.8, -4.5]	[-11.3, 3.0]	[-8.6, 5.4]	[-10.9, 3.6]	[-8.8, 5.4]
%Δ (95% CI – EHW)	[-18.9, -8.7]	[-17.3, -7.0]	[-18.0, -7.7]	[-18.1, -7.9]	[-11.9, -0.9]	[-10.5, 0.6]	[-11.4, -0.8]	[-11.1, -0.6]	[-16.7, -7.2]	[-15.1, -5.6]	[-16.2, -6.7]	[-14.9, -5.5]	[-10.7, 2.4]	[-8.2, 5.0]	[-10.4, 3.1]	[-8.4, 5.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.037	-0.032	-0.034	-0.033	-0.019	-0.015	-0.017	-0.016	-0.028	-0.023	-0.026	-0.022	-0.002	0.004	-0.000	0.004
SE (Clustered)	(0.0045)***	(0.0044)***	(0.0043)***	(0.0042)***	(0.0047)***	(0.0046)***	(0.0044)***	(0.0043)***	(0.0044)***	(0.0043)***	(0.0042)***	(0.0041)***	(0.0047)	(0.0044)	(0.0045)	(0.0043)
SE (EHW)	(0.0023)***	(0.0023)***	(0.0022)***	(0.0022)***	(0.0024)***	(0.0023)***	(0.0023)***	(0.0022)***	(0.0025)***	(0.0024)***	(0.0024)***	(0.0023)***	(0.0033)	(0.0032)	(0.0032)	(0.0031)
%Δ	-3.6	-3.1	-3.3	-3.3	-1.9	-1.5	-1.7	-1.6	-2.7	-2.3	-2.5	-2.2	-0.2	0.4	-0.0	0.4
%Δ (95% CI – Clustered)	[-4.5, -2.8]	[-4.0, -2.3]	[-4.1, -2.5]	[-4.1, -2.5]	[-2.8, -1.0]	[-2.4, -0.6]	[-2.6, -0.9]	[-2.4, -0.8]	[-3.6, -1.9]	[-3.1, -1.5]	[-3.3, -1.7]	[-3.0, -1.4]	[-1.1, 0.7]	[-0.5, 1.3]	[-0.9, 0.9]	[-0.4, 1.3]
%Δ (95% CI – EHW)	[-4.1, -3.2]	[-3.6, -2.7]	[-3.7, -2.9]	[-3.7, -2.9]	[-2.3, -1.4]	[-1.9, -1.0]	[-2.2, -1.3]	[-2.0, -1.2]	[-3.2, -2.3]	[-2.7, -1.8]	[-3.0, -2.1]	[-2.7, -1.8]	[-0.9, 0.4]	[-0.2, 1.0]	[-0.6, 0.6]	[-0.2, 1.1]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.748]				[0.748]				[0.752]				[0.758]		
Poisson																
NIH × Post April 2008	-0.138	-0.018	-0.114	-0.048	-0.077	-0.002	-0.094	-0.030	-0.133	-0.044	-0.141	-0.052	-0.059	0.021	-0.071	0.006
SE (Clustered)	(0.0258)***	(0.0240)	(0.0213)***	(0.0178)***	(0.0259)***	(0.0248)	(0.0216)***	(0.0179)*	(0.0256)***	(0.0234)*	(0.0188)***	(0.0162)***	(0.0317)*	(0.0312)	(0.0265)***	(0.0265)
SE (EHW)	(0.0123)***	(0.0121)	(0.0046)***	(0.0046)***	(0.0125)***	(0.0123)	(0.0047)***	(0.0047)***	(0.0130)***	(0.0134)***	(0.0050)***	(0.0050)***	(0.0231)**	(0.0236)	(0.0062)***	(0.0062)
%Δ	-12.9	-1.8	-10.8	-4.7	-7.5	-0.2	-9.0	-2.9	-12.4	-4.3	-13.2	-5.1	-5.7	2.2	-6.8	0.6
%Δ (95% CI – Clustered)	[-17.2, -8.3]	[-6.3, 3.0]	[-14.4, -7.0]	[-7.9, -1.3]	[-12.0, -2.6]	[-4.9, 4.8]	[-12.8, -5.1]	[-6.3, 0.6]	[-16.7, -7.9]	[-8.6, 0.2]	[-16.3, -9.9]	[-8.1, -2.0]	[-11.4, 0.3]	[-3.9, 8.6]	[-11.5, -1.9]	[-4.5, 6.0]
%Δ (95% CI – EHW)	[-14.9, -10.7]	[-4.1, 0.6]	[-11.6, -10.0]	[-5.5, -3.8]	[-9.7, -5.2]	[-2.6, 2.3]	[-9.8, -8.2]	[-3.8, -2.0]	[-14.6, -10.2]	[-6.8, -1.8]	[-14.0, -12.3]	[-6.0, -4.2]	[-9.9, -1.4]	[-2.5, 7.0]	[-8.0, -5.7]	[-0.6, 1.8]
Observations	6,108,951		5,861,840		4,918,431		4,789,973		3,067,679		2,947,474		1,288,882		1,238,496	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.192	-0.154	-0.168	-0.152	-0.103	-0.074	-0.095	-0.075	-0.113	-0.074	-0.103	-0.068	-0.007	0.023	-0.005	0.022
SE (Clustered)	(0.0203)***	(0.0206)***	(0.0201)***	(0.0200)***	(0.0202)***	(0.0205)***	(0.0201)***	(0.0202)***	(0.0180)***	(0.0178)***	(0.0172)***	(0.0169)***	(0.0172)	(0.0169)	(0.0159)	(0.0156)
SE (EHW)	(0.0053)***	(0.0053)***	(0.0053)***	(0.0052)***	(0.0055)***	(0.0055)***	(0.0055)***	(0.0054)***	(0.0055)***	(0.0054)***	(0.0054)***	(0.0054)***	(0.0078)	(0.0076)***	(0.0079)	(0.0078)***
%Δ	-25.7	-20.6	-22.4	-20.3	-13.7	-9.8	-12.7	-10.0	-15.0	-9.9	-13.6	-9.1	-0.9	3.1	-0.6	2.9
%Δ (95% CI – Clustered)	[-31.0, -20.4]	[-26.0, -15.2]	[-27.7, -17.1]	[-25.5, -15.0]	[-19.0, -8.4]	[-15.2, -4.5]	[-18.0, -7.4]	[-15.3, -4.8]	[-19.7, -10.3]	[-14.5, -5.2]	[-18.1, -9.1]	[-13.5, -4.7]	[-5.3, 3.6]	[-1.3, 7.4]	[-4.7, 3.5]	[-1.2, 6.9]
%Δ (95% CI – EHW)	[-27.1, -24.3]	[-22.0, -19.3]	[-23.8, -21.0]	[-21.6, -18.9]	[-15.2, -12.3]	[-11.3, -8.4]	[-14.1, -11.3]	[-11.5, -8.6]	[-16.4, -13.6]	[-11.3, -8.5]	[-15.0, -12.2]	[-10.5, -7.7]	[-2.9, 1.1]	[1.1, 5.0]	[-2.7, 1.4]	[0.8, 4.9]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.103	-0.083	-0.087	-0.080	-0.060	-0.045	-0.053	-0.045	-0.061	-0.042	-0.054	-0.038	-0.003	0.011	-0.001	0.011
SE (Clustered)	(0.0081)***	(0.0079)***	(0.0075)***	(0.0073)***	(0.0080)***	(0.0079)***	(0.0075)***	(0.0073)***	(0.0069)***	(0.0066)***	(0.0063)***	(0.0061)***	(0.0062)	(0.0060)*	(0.0055)	(0.0054)**
SE (EHW)	(0.0014)***	(0.0014)***	(0.0014)***	(0.0014)***	(0.0015)***	(0.0014)***	(0.0014)***	(0.0014)***	(0.0016)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0020)	(0.0020)***	(0.0020)	(0.0019)***
%Δ	-9.8	-7.9	-8.4	-7.7	-5.8	-4.4	-5.2	-4.4	-6.0	-4.1	-5.2	-3.8	-0.3	1.1	-0.1	1.1
%Δ (95% CI – Clustered)	[-11.2, -8.3]	[-9.4, -6.5]	[-9.7, -7.0]	[-9.0, -6.3]	[-7.3, -4.3]	[-5.9, -2.9]	[-6.6, -3.8]	[-5.7, -3.0]	[-7.2, -4.7]	[-5.3, -2.8]	[-6.4, -4.1]	[-4.9, -2.6]	[-1.5, 1.0]	[-0.1, 2.3]	[-1.1, 1.0]	[0.0, 2.1]
%Δ (95% CI – EHW)	[-10.0, -9.5]	[-8.2, -7.7]	[-8.6, -8.1]	[-7.9, -7.4]	[-6.1, -5.5]	[-4.7, -4.2]	[-5.5, -4.9]	[-4.6, -4.1]	[-6.2, -5.7]	[-4.4, -3.8]	[-5.5, -5.0]	[-4.0, -3.5]	[-0.7, 0.1]	[0.7, 1.5]	[-0.4, 0.3]	[0.7, 1.5]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.1.3. Dummy for Positive 2-Year Cites from Researchers in a Poor/Developing Country (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.111]				[0.111]				[0.111]				[0.112]		
Poisson																
NIH × Post April 2008	-0.152	-0.102	-0.127	-0.107	-0.102	-0.066	-0.091	-0.071	-0.111	-0.064	-0.098	-0.061	-0.010	0.030	0.000	0.034
SE (Clustered)	(0.0238)***	(0.0227)***	(0.0219)***	(0.0216)***	(0.0236)***	(0.0225)***	(0.0218)***	(0.0215)***	(0.0222)***	(0.0216)***	(0.0209)***	(0.0206)***	(0.0241)	(0.0236)	(0.0231)	(0.0227)
SE (EHW)	(0.0151)***	(0.0150)***	(0.0158)***	(0.0158)***	(0.0152)***	(0.0150)***	(0.0159)***	(0.0159)***	(0.0160)***	(0.0158)***	(0.0167)***	(0.0167)***	(0.0203)	(0.0200)	(0.0213)	(0.0214)
%Δ	-14.1	-9.7	-11.9	-10.2	-9.7	-6.4	-8.7	-6.9	-10.5	-6.2	-9.3	-5.9	-1.0	3.0	0.0	3.4
%Δ (95% CI – Clustered)	[-18.0, -10.0]	[-13.7, -5.6]	[-15.6, -8.0]	[-13.9, -6.3]	[-13.8, -5.4]	[-10.4, -2.2]	[-12.6, -4.7]	[-10.7, -2.9]	[-14.3, -6.5]	[-10.1, -2.2]	[-13.0, -5.5]	[-9.6, -2.0]	[-5.5, 3.8]	[-1.7, 7.9]	[-4.4, 4.7]	[-1.1, 8.1]
%Δ (95% CI – EHW)	[-16.6, -11.5]	[-12.3, -7.0]	[-14.6, -9.2]	[-12.9, -7.4]	[-12.3, -7.0]	[-9.1, -3.6]	[-11.5, -5.9]	[-9.7, -3.9]	[-13.2, -7.6]	[-9.1, -3.3]	[-12.2, -6.3]	[-8.9, -2.8]	[-4.8, 3.0]	[-0.9, 7.1]	[-4.1, 4.3]	[-0.8, 7.8]
Observations	2,103,480		1,923,965		1,707,823		1,620,116		1,203,393		1,097,390		451,968		410,990	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.023	-0.021	-0.021	-0.021	-0.014	-0.012	-0.012	-0.011	-0.015	-0.013	-0.014	-0.012	0.002	0.005	0.003	0.005
SE (Clustered)	(0.0025)***	(0.0025)***	(0.0025)***	(0.0024)***	(0.0026)***	(0.0025)***	(0.0025)***	(0.0025)***	(0.0024)***	(0.0024)***	(0.0024)***	(0.0023)***	(0.0025)	(0.0025)**	(0.0025)	(0.0024)**
SE (EHW)	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0012)***	(0.0013)***	(0.0013)***	(0.0013)***	(0.0013)***	(0.0017)	(0.0017)***	(0.0017)*	(0.0017)***
%Δ	-20.9	-18.6	-19.2	-18.7	-12.7	-10.5	-11.1	-10.2	-13.6	-11.6	-12.6	-10.9	2.0	4.4	2.8	4.8
%Δ (95% CI – Clustered)	[-25.4, -16.4]	[-23.0, -14.2]	[-23.6, -14.8]	[-23.0, -14.3]	[-17.2, -8.1]	[-15.0, -6.0]	[-15.6, -6.7]	[-14.6, -5.8]	[-17.9, -9.4]	[-15.7, -7.4]	[-16.7, -8.4]	[-15.0, -6.8]	[-2.5, 6.4]	[0.1, 8.7]	[-1.5, 7.2]	[0.5, 9.1]
%Δ (95% CI – EHW)	[-23.0, -18.7]	[-20.7, -16.5]	[-21.3, -17.1]	[-20.8, -16.6]	[-14.8, -10.5]	[-12.6, -8.4]	[-13.3, -9.0]	[-12.3, -8.1]	[-15.9, -11.4]	[-13.8, -9.3]	[-14.8, -10.3]	[-13.1, -8.7]	[-1.1, 5.0]	[1.4, 7.4]	[-0.2, 5.9]	[1.9, 7.8]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.020	-0.018	-0.019	-0.018	-0.012	-0.010	-0.011	-0.010	-0.013	-0.011	-0.012	-0.011	0.002	0.004	0.003	0.005
SE (Clustered)	(0.0022)***	(0.0022)***	(0.0022)***	(0.0022)***	(0.0023)***	(0.0022)***	(0.0022)***	(0.0022)***	(0.0021)***	(0.0021)***	(0.0021)***	(0.0020)***	(0.0022)	(0.0022)**	(0.0022)	(0.0021)**
SE (EHW)	(0.0011)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0011)***	(0.0015)	(0.0015)***	(0.0015)*	(0.0015)***
%Δ	-2.0	-1.8	-1.9	-1.8	-1.2	-1.0	-1.1	-1.0	-1.3	-1.1	-1.2	-1.1	0.2	0.4	0.3	0.5
%Δ (95% CI – Clustered)	[-2.4, -1.6]	[-2.2, -1.4]	[-2.3, -1.4]	[-2.2, -1.4]	[-1.7, -0.8]	[-1.5, -0.6]	[-1.5, -0.6]	[-1.4, -0.6]	[-1.7, -0.9]	[-1.5, -0.7]	[-1.6, -0.8]	[-1.5, -0.7]	[-0.2, 0.6]	[0.0, 0.9]	[-0.1, 0.7]	[0.1, 0.9]
%Δ (95% CI – EHW)	[-2.2, -1.8]	[-2.0, -1.6]	[-2.1, -1.7]	[-2.0, -1.6]	[-1.4, -1.0]	[-1.2, -0.8]	[-1.3, -0.9]	[-1.2, -0.8]	[-1.5, -1.1]	[-1.3, -0.9]	[-1.4, -1.0]	[-1.3, -0.9]	[-0.1, 0.5]	[0.1, 0.7]	[-0.0, 0.6]	[0.2, 0.8]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.114]				[0.114]				[0.115]				[0.116]		
Poisson																
NIH × Post April 2008	-0.187	-0.062	-0.135	-0.072	-0.118	-0.028	-0.103	-0.041	-0.146	-0.037	-0.126	-0.034	-0.002	0.077	-0.001	0.068
SE (Clustered)	(0.0250)***	(0.0236)***	(0.0208)***	(0.0198)***	(0.0244)***	(0.0232)	(0.0205)***	(0.0193)**	(0.0217)***	(0.0200)*	(0.0173)***	(0.0166)**	(0.0199)	(0.0192)***	(0.0165)	(0.0162)***
SE (EHW)	(0.0090)***	(0.0091)***	(0.0094)***	(0.0095)***	(0.0091)***	(0.0091)***	(0.0095)***	(0.0095)***	(0.0097)***	(0.0097)***	(0.0101)***	(0.0102)***	(0.0120)	(0.0120)***	(0.0126)	(0.0127)***
%Δ	-17.1	-6.0	-12.7	-7.0	-11.1	-2.8	-9.8	-4.0	-13.6	-3.7	-11.9	-3.3	-0.2	8.0	-0.1	7.1
%Δ (95% CI – Clustered)	[-21.0, -12.9]	[-10.2, -1.6]	[-16.2, -9.0]	[-10.5, -3.3]	[-15.3, -6.8]	[-7.1, 1.7]	[-13.4, -6.1]	[-7.6, -0.3]	[-17.2, -9.9]	[-7.4, 0.2]	[-14.8, -8.8]	[-6.4, -0.1]	[-4.1, 3.8]	[4.0, 12.1]	[-3.3, 3.1]	[3.7, 10.5]
%Δ (95% CI – EHW)	[-18.5, -15.6]	[-7.7, -4.3]	[-14.3, -11.0]	[-8.7, -5.2]	[-12.7, -9.5]	[-4.5, -1.0]	[-11.5, -8.1]	[-5.8, -2.2]	[-15.2, -11.9]	[-5.5, -1.8]	[-13.6, -10.1]	[-5.2, -1.4]	[-2.5, 2.1]	[5.5, 10.6]	[-2.6, 2.4]	[4.4, 9.8]
Observations	6,108,951		5,748,131		4,918,431		4,745,695		3,067,679		2,888,474		1,288,882		1,213,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.026	-0.019	-0.022	-0.019	-0.016	-0.010	-0.014	-0.010	-0.016	-0.009	-0.014	-0.008	0.004	0.010	0.004	0.009
SE (Clustered)	(0.0025)***	(0.0025)***	(0.0023)***	(0.0023)***	(0.0025)***	(0.0025)***	(0.0023)***	(0.0023)***	(0.0023)***	(0.0022)***	(0.0020)***	(0.0020)***	(0.0021)*	(0.0020)***	(0.0019)**	(0.0019)***
SE (EHW)	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0010)***
%Δ	-23.0	-16.8	-19.1	-16.8	-13.7	-8.5	-12.0	-8.8	-14.1	-7.4	-12.5	-7.1	3.3	8.7	3.5	8.1
%Δ (95% CI – Clustered)	[-27.3, -18.7]	[-21.1, -12.6]	[-23.0, -15.1]	[-20.7, -12.9]	[-18.1, -9.4]	[-12.8, -4.2]	[-16.0, -8.0]	[-12.8, -4.8]	[-18.0, -10.2]	[-11.1, -3.7]	[-16.0, -9.0]	[-10.5, -3.6]	[-0.2, 6.9]	[5.2, 12.2]	[0.3, 6.7]	[4.9, 11.2]
%Δ (95% CI – EHW)	[-24.1, -21.8]	[-18.0, -15.7]	[-20.3, -17.9]	[-18.0, -15.6]	[-14.9, -12.5]	[-9.7, -7.3]	[-13.1, -10.8]	[-10.0, -7.6]	[-15.4, -12.8]	[-8.7, -6.1]	[-13.8, -11.2]	[-8.3, -5.8]	[1.7, 5.0]	[7.0, 10.4]	[1.8, 5.2]	[6.4, 9.7]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.023	-0.017	-0.019	-0.017	-0.014	-0.009	-0.012	-0.009	-0.014	-0.007	-0.013	-0.007	0.003	0.009	0.004	0.008
SE (Clustered)	(0.0022)***	(0.0022)***	(0.0020)***	(0.0020)***	(0.0022)***	(0.0022)***	(0.0021)***	(0.0020)***	(0.0020)***	(0.0019)***	(0.0018)***	(0.0018)***	(0.0018)*	(0.0018)***	(0.0017)**	(0.0017)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0006)***	(0.0007)***	(0.0007)***	(0.0007)***	(0.0006)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0009)***
%Δ	-2.3	-1.7	-1.9	-1.7	-1.4	-0.9	-1.2	-0.9	-1.4	-0.7	-1.3	-0.7	0.3	0.9	0.4	0.8
%Δ (95% CI – Clustered)	[-2.7, -1.9]	[-2.1, -1.3]	[-2.3, -1.5]	[-2.1, -1.3]	[-1.8, -0.9]	[-1.3, -0.4]	[-1.6, -0.8]	[-1.3, -0.5]	[-1.8, -1.0]	[-1.1, -0.4]	[-1.6, -0.9]	[-1.1, -0.4]	[-0.0, 0.7]	[0.5, 1.2]	[0.0, 0.7]	[0.5, 1.2]
%Δ (95% CI – EHW)	[-2.4, -2.2]	[-1.8, -1.6]	[-2.0, -1.8]	[-1.8, -1.6]	[-1.5, -1.3]	[-1.0, -0.7]	[-1.3, -1.1]	[-1.0, -0.8]	[-1.5, -1.3]	[-0.9, -0.6]	[-1.4, -1.1]	[-0.8, -0.6]	[0.2, 0.5]	[0.7, 1.1]	[0.2, 0.5]	[0.7, 1.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.1.4. Dummy for Lifetime Cites from Researchers in a Poor/Developing Country (DiD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.233]				[0.233]				[0.234]				[0.235]		
Poisson																
NIH × Post April 2008	-0.028	0.005	-0.013	-0.003	0.003	0.023	0.000	0.011	-0.031	0.001	-0.022	-0.001	0.010	0.037	0.020	0.039
SE (Clustered)	(0.0132)**	(0.0126)	(0.0118)	(0.0115)	(0.0134)	(0.0130)*	(0.0118)	(0.0115)	(0.0131)**	(0.0127)	(0.0118)*	(0.0116)	(0.0143)	(0.0140)***	(0.0133)	(0.0131)***
SE (EHW)	(0.0091)***	(0.0090)	(0.0101)	(0.0101)	(0.0091)	(0.0090)**	(0.0102)	(0.0102)	(0.0096)***	(0.0095)	(0.0107)**	(0.0107)	(0.0124)	(0.0121)***	(0.0139)	(0.0139)***
%Δ	-2.8	0.5	-1.3	-0.3	0.3	2.3	0.0	1.1	-3.1	0.1	-2.2	-0.1	1.1	3.8	2.0	3.9
%Δ (95% CI – Clustered)	[-5.3, -0.2]	[-2.0, 3.0]	[-3.6, 1.0]	[-2.5, 2.0]	[-2.3, 3.0]	[-0.3, 4.9]	[-2.2, 2.4]	[-1.1, 3.4]	[-5.5, -0.6]	[-2.4, 2.6]	[-4.4, 0.1]	[-2.3, 2.2]	[-1.7, 3.9]	[1.0, 6.7]	[-0.6, 4.7]	[1.3, 6.6]
%Δ (95% CI – EHW)	[-4.5, -1.0]	[-1.3, 2.3]	[-3.2, 0.7]	[-2.2, 1.7]	[-1.5, 2.1]	[0.5, 4.1]	[-1.9, 2.1]	[-0.9, 3.2]	[-4.9, -1.2]	[-1.8, 1.9]	[-4.2, -0.1]	[-2.2, 2.0]	[-1.4, 3.5]	[1.3, 6.3]	[-0.8, 4.8]	[1.2, 6.8]
Observations	2,103,480		1,985,494		1,707,823		1,650,425		1,203,393		1,136,891		451,968		426,040	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.026	-0.022	-0.023	-0.023	-0.013	-0.011	-0.012	-0.011	-0.019	-0.016	-0.017	-0.015	0.000	0.004	0.002	0.005
SE (Clustered)	(0.0030)***	(0.0029)***	(0.0028)***	(0.0027)***	(0.0031)***	(0.0030)***	(0.0028)***	(0.0027)***	(0.0030)***	(0.0028)***	(0.0028)***	(0.0027)***	(0.0032)	(0.0031)	(0.0031)	(0.0030)
SE (EHW)	(0.0017)***	(0.0017)***	(0.0016)***	(0.0016)***	(0.0017)***	(0.0017)***	(0.0017)***	(0.0017)***	(0.0018)***	(0.0018)***	(0.0018)***	(0.0017)***	(0.0024)	(0.0023)*	(0.0023)	(0.0023)**
%Δ	-11.2	-9.6	-10.0	-9.9	-5.7	-4.5	-5.2	-4.8	-8.2	-6.7	-7.4	-6.4	0.0	1.6	0.9	2.0
%Δ (95% CI – Clustered)	[-13.7, -8.6]	[-12.0, -7.2]	[-12.4, -7.6]	[-12.2, -7.6]	[-8.2, -3.1]	[-7.0, -2.0]	[-7.6, -2.8]	[-7.2, -2.5]	[-10.6, -5.7]	[-9.1, -4.4]	[-9.7, -5.0]	[-8.6, -4.1]	[-2.7, 2.7]	[-1.0, 4.2]	[-1.7, 3.4]	[-0.5, 4.5]
%Δ (95% CI – EHW)	[-12.6, -9.7]	[-11.0, -8.2]	[-11.4, -8.6]	[-11.2, -8.5]	[-7.1, -4.2]	[-6.0, -3.1]	[-6.6, -3.8]	[-6.2, -3.5]	[-9.7, -6.6]	[-8.2, -5.3]	[-8.8, -5.9]	[-7.8, -5.0]	[-2.0, 2.0]	[-0.3, 3.6]	[-1.1, 2.8]	[0.1, 3.9]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.023	-0.020	-0.021	-0.020	-0.012	-0.009	-0.011	-0.010	-0.017	-0.014	-0.015	-0.013	0.000	0.003	0.002	0.004
SE (Clustered)	(0.0027)***	(0.0025)***	(0.0025)***	(0.0024)***	(0.0027)***	(0.0026)***	(0.0025)***	(0.0024)***	(0.0026)***	(0.0025)***	(0.0024)***	(0.0024)***	(0.0029)	(0.0027)	(0.0027)	(0.0026)
SE (EHW)	(0.0015)***	(0.0015)***	(0.0015)***	(0.0014)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0015)***	(0.0016)***	(0.0016)***	(0.0015)***	(0.0015)***	(0.0021)	(0.0021)*	(0.0021)	(0.0020)**
%Δ	-2.3	-1.9	-2.0	-2.0	-1.2	-0.9	-1.1	-1.0	-1.7	-1.4	-1.5	-1.3	0.0	0.3	0.2	0.4
%Δ (95% CI – Clustered)	[-2.8, -1.8]	[-2.4, -1.5]	[-2.5, -1.6]	[-2.5, -1.5]	[-1.7, -0.6]	[-1.4, -0.4]	[-1.5, -0.6]	[-1.5, -0.5]	[-2.2, -1.2]	[-1.9, -0.9]	[-2.0, -1.0]	[-1.8, -0.9]	[-0.6, 0.6]	[-0.2, 0.9]	[-0.4, 0.7]	[-0.1, 0.9]
%Δ (95% CI – EHW)	[-2.6, -2.0]	[-2.2, -1.7]	[-2.3, -1.8]	[-2.3, -1.7]	[-1.5, -0.9]	[-1.2, -0.6]	[-1.3, -0.8]	[-1.3, -0.7]	[-2.0, -1.4]	[-1.7, -1.1]	[-1.8, -1.2]	[-1.6, -1.0]	[-0.4, 0.4]	[-0.1, 0.7]	[-0.2, 0.6]	[0.0, 0.8]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.309]				[0.309]				[0.311]				[0.313]		
Poisson																
NIH × Post April 2008	-0.098	-0.009	-0.058	-0.019	-0.048	0.007	-0.045	-0.008	-0.085	-0.021	-0.075	-0.024	-0.011	0.034	-0.012	0.025
SE (Clustered)	(0.0173)***	(0.0159)	(0.0138)***	(0.0126)	(0.0168)***	(0.0161)	(0.0137)***	(0.0124)	(0.0152)***	(0.0140)	(0.0118)***	(0.0110)**	(0.0139)	(0.0130)***	(0.0106)	(0.0103)**
SE (EHW)	(0.0056)***	(0.0056)*	(0.0062)***	(0.0063)***	(0.0057)***	(0.0057)	(0.0063)***	(0.0063)	(0.0061)***	(0.0061)***	(0.0067)***	(0.0068)***	(0.0076)	(0.0076)***	(0.0085)	(0.0085)***
%Δ	-9.3	-0.9	-5.7	-1.9	-4.7	0.7	-4.4	-0.8	-8.1	-2.0	-7.2	-2.4	-1.1	3.4	-1.2	2.5
%Δ (95% CI – Clustered)	[-12.3, -6.2]	[-4.0, 2.2]	[-8.2, -3.1]	[-4.3, 0.6]	[-7.8, -1.5]	[-2.4, 4.0]	[-6.9, -1.8]	[-3.2, 1.7]	[-10.8, -5.3]	[-4.7, 0.7]	[-9.4, -5.1]	[-4.5, -0.2]	[-3.8, 1.6]	[0.8, 6.1]	[-3.2, 0.9]	[0.5, 4.6]
%Δ (95% CI – EHW)	[-10.3, -8.3]	[-2.0, 0.2]	[-6.8, -4.5]	[-3.1, -0.6]	[-5.7, -3.6]	[-0.4, 1.9]	[-5.6, -3.2]	[-2.0, 0.4]	[-9.2, -7.0]	[-3.2, -0.9]	[-8.5, -6.0]	[-3.6, -1.1]	[-2.6, 0.4]	[1.9, 5.0]	[-2.8, 0.5]	[0.8, 4.3]
Observations	6,108,951		5,861,840		4,918,431		4,789,973		3,067,679		2,947,474		1,288,882		1,238,496	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.068	-0.055	-0.057	-0.053	-0.041	-0.032	-0.036	-0.031	-0.042	-0.029	-0.036	-0.027	-0.003	0.004	-0.001	0.004
SE (Clustered)	(0.0046)***	(0.0044)***	(0.0040)***	(0.0039)***	(0.0045)***	(0.0043)***	(0.0039)***	(0.0038)***	(0.0038)***	(0.0036)***	(0.0033)***	(0.0031)***	(0.0033)	(0.0032)	(0.0029)	(0.0028)
SE (EHW)	(0.0010)***	(0.0010)***	(0.0010)***	(0.0009)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0011)***	(0.0010)***	(0.0010)***	(0.0010)***	(0.0014)**	(0.0014)***	(0.0014)	(0.0013)***
%Δ	-22.1	-17.9	-18.4	-17.0	-13.1	-10.3	-11.6	-10.0	-13.5	-9.4	-11.6	-8.6	-1.1	1.4	-0.5	1.4
%Δ (95% CI – Clustered)	[-25.0, -19.2]	[-20.7, -15.1]	[-20.9, -15.8]	[-19.5, -14.6]	[-16.0, -10.3]	[-13.1, -7.6]	[-14.1, -9.1]	[-12.4, -7.6]	[-15.9, -11.1]	[-11.7, -7.1]	[-13.6, -9.5]	[-10.6, -6.6]	[-3.2, 1.0]	[-0.7, 3.4]	[-2.3, 1.3]	[-0.3, 3.2]
%Δ (95% CI – EHW)	[-22.7, -21.5]	[-18.5, -17.3]	[-19.0, -17.8]	[-17.6, -16.4]	[-13.8, -12.5]	[-10.9, -9.7]	[-12.2, -11.0]	[-10.6, -9.4]	[-14.2, -12.8]	[-10.1, -8.7]	[-12.2, -10.9]	[-9.3, -8.0]	[-1.9, -0.2]	[0.5, 2.2]	[-1.3, 0.4]	[0.6, 2.3]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.060	-0.049	-0.050	-0.046	-0.036	-0.028	-0.032	-0.027	-0.037	-0.026	-0.032	-0.024	-0.003	0.004	-0.001	0.004
SE (Clustered)	(0.0040)***	(0.0039)***	(0.0035)***	(0.0034)***	(0.0040)***	(0.0038)***	(0.0034)***	(0.0033)***	(0.0034)***	(0.0032)***	(0.0029)***	(0.0028)***	(0.0030)	(0.0028)	(0.0025)	(0.0025)
SE (EHW)	(0.0009)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0008)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0009)***	(0.0012)**	(0.0012)***	(0.0012)	(0.0012)***
%Δ	-5.8	-4.8	-4.9	-4.5	-3.5	-2.8	-3.1	-2.7	-3.6	-2.5	-3.1	-2.3	-0.3	0.4	-0.1	0.4
%Δ (95% CI – Clustered)	[-6.6, -5.1]	[-5.5, -4.0]	[-5.5, -4.2]	[-5.2, -3.9]	[-4.3, -2.8]	[-3.5, -2.0]	[-3.8, -2.5]	[-3.3, -2.1]	[-4.3, -3.0]	[-3.1, -1.9]	[-3.7, -2.6]	[-2.9, -1.8]	[-0.9, 0.3]	[-0.2, 0.9]	[-0.6, 0.4]	[-0.1, 0.9]
%Δ (95% CI – EHW)	[-6.0, -5.7]	[-4.9, -4.6]	[-5.0, -4.7]	[-4.7, -4.4]	[-3.7, -3.3]	[-2.9, -2.6]	[-3.3, -2.9]	[-2.9, -2.5]	[-3.8, -3.4]	[-2.7, -2.4]	[-3.3, -2.9]	[-2.5, -2.2]	[-0.5, -0.0]	[0.1, 0.6]	[-0.4, 0.1]	[0.2, 0.6]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.2.1. Count of 2-Year Cites from Researchers in a Poor/Developing Country (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.108]		[0.122]		[0.155]	
Poisson						
Post April 2008	-0.024	-0.029	-0.092	-0.088	-0.219	-0.276
SE (EHW)	(0.0676)	(0.0679)	(0.0469)*	(0.0478)*	(0.0298)***	(0.0331)***
%Δ	-2.4	-2.9	-8.8	-8.4	-19.7	-24.1
%Δ (95% CI – EHW)	[-14.5, 11.5]	[-15.0, 10.9]	[-16.8, 0.0]	[-16.6, 0.6]	[-24.3, -14.9]	[-28.9, -19.1]
Linear – Levels						
Post April 2008	-0.003	-0.002	-0.010	-0.005	-0.023	-0.014
SE (EHW)	(0.0062)	(0.0066)	(0.0045)**	(0.0047)	(0.0032)***	(0.0033)***
%Δ	-3.1	-1.8	-8.1	-3.9	-15.0	-9.3
%Δ (95% CI – EHW)	[-14.5, 8.2]	[-13.8, 10.2]	[-15.2, -0.9]	[-11.4, 3.5]	[-19.1, -11.0]	[-13.4, -5.2]
Linear – IHS						
Post April 2008	-0.004	-0.002	-0.009	-0.006	-0.019	-0.013
SE (EHW)	(0.0042)	(0.0046)	(0.0030)***	(0.0031)*	(0.0021)***	(0.0022)***
%Δ	-0.4	-0.2	-0.9	-0.6	-1.9	-1.3
%Δ (95% CI – EHW)	[-1.2, 0.5]	[-1.1, 0.7]	[-1.5, -0.3]	[-1.2, 0.0]	[-2.3, -1.5]	[-1.8, -0.9]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.028	0.033	-0.100	-0.051	-0.290	0.019
SE (EHW)	(0.0673)	(0.1200)	(0.0478)**	(0.0709)	(0.0324)***	(0.0507)
%Δ	-2.8	3.3	-9.5	-5.0	-25.2	1.9
%Δ (95% CI – EHW)	[-14.8, 10.9]	[-18.3, 30.7]	[-17.6, -0.6]	[-17.3, 9.2]	[-29.8, -20.3]	[-7.8, 12.5]
Linear – Levels						
Post April 2008	-0.003	0.004	-0.006	-0.006	-0.017	0.009
SE (EHW)	(0.0064)	(0.0120)	(0.0046)	(0.0073)	(0.0032)***	(0.0052)*
%Δ	-2.6	3.9	-5.1	-5.2	-11.1	5.6
%Δ (95% CI – EHW)	[-14.3, 9.1]	[-17.9, 25.7]	[-12.5, 2.3]	[-17.0, 6.6]	[-15.2, -7.0]	[-1.0, 12.3]
Linear – IHS						
Post April 2008	-0.003	0.004	-0.007	-0.003	-0.015	0.003
SE (EHW)	(0.0044)	(0.0083)	(0.0031)**	(0.0048)	(0.0022)***	(0.0033)
%Δ	-0.3	0.4	-0.7	-0.3	-1.5	0.3
%Δ (95% CI – EHW)	[-1.2, 0.6]	[-1.3, 2.0]	[-1.3, -0.1]	[-1.2, 0.6]	[-1.9, -1.1]	[-0.4, 0.9]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations from researchers in a poor/developing country. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table K.2.2. Count of Lifetime Cites from Researchers in a Poor/Developing Country (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.392]		[0.411]		[0.473]	
Poisson						
Post April 2008	0.017	-0.018	-0.009	-0.015	-0.042	-0.045
SE (EHW)	(0.0560)	(0.0545)	(0.0405)	(0.0408)	(0.0270)	(0.0275)
%Δ	1.7	-1.8	-0.9	-1.4	-4.1	-4.4
%Δ (95% CI – EHW)	[-8.9, 13.5]	[-11.7, 9.3]	[-8.5, 7.2]	[-9.0, 6.8]	[-9.1, 1.1]	[-9.4, 0.9]
Linear – Levels						
Post April 2008	0.005	-0.007	-0.005	-0.005	-0.017	-0.007
SE (EHW)	(0.0203)	(0.0205)	(0.0145)	(0.0153)	(0.0100)*	(0.0099)
%Δ	1.2	-1.9	-1.3	-1.2	-3.6	-1.5
%Δ (95% CI – EHW)	[-9.0, 11.3]	[-12.2, 8.4]	[-8.2, 5.6]	[-8.5, 6.1]	[-7.7, 0.5]	[-5.6, 2.6]
Linear – IHS						
Post April 2008	-0.004	-0.008	-0.009	-0.009	-0.013	-0.008
SE (EHW)	(0.0082)	(0.0087)	(0.0057)	(0.0059)	(0.0040)***	(0.0041)*
%Δ	-0.4	-0.8	-0.9	-0.9	-1.3	-0.8
%Δ (95% CI – EHW)	[-2.0, 1.2]	[-2.5, 0.9]	[-2.0, 0.2]	[-2.0, 0.3]	[-2.0, -0.5]	[-1.6, 0.0]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.002	0.030	-0.010	-0.059	-0.048	0.028
SE (EHW)	(0.0552)	(0.0962)	(0.0406)	(0.0620)	(0.0275)*	(0.0462)
%Δ	-0.2	3.1	-1.0	-5.7	-4.7	2.9
%Δ (95% CI – EHW)	[-10.4, 11.2]	[-14.6, 24.5]	[-8.5, 7.3]	[-16.5, 6.5]	[-9.7, 0.6]	[-6.1, 12.6]
Linear – Levels						
Post April 2008	-0.003	0.012	-0.003	-0.027	-0.010	0.010
SE (EHW)	(0.0205)	(0.0367)	(0.0152)	(0.0248)	(0.0100)	(0.0187)
%Δ	-0.7	3.1	-0.8	-6.5	-2.1	2.2
%Δ (95% CI – EHW)	[-11.0, 9.6]	[-15.2, 21.5]	[-8.0, 6.5]	[-18.3, 5.3]	[-6.2, 2.1]	[-5.5, 9.9]
Linear – IHS						
Post April 2008	-0.007	0.001	-0.008	-0.010	-0.009	-0.004
SE (EHW)	(0.0084)	(0.0158)	(0.0058)	(0.0090)	(0.0041)**	(0.0061)
%Δ	-0.7	0.1	-0.8	-1.0	-0.9	-0.4
%Δ (95% CI – EHW)	[-2.3, 1.0]	[-2.9, 3.3]	[-2.0, 0.3]	[-2.8, 0.7]	[-1.7, -0.1]	[-1.6, 0.8]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations from researchers in a poor/developing country. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table K.2.3. Dummy for Positive 2-Year Cites from Researchers in a Poor/Developing Country (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.081]		[0.090]		[0.109]	
Poisson						
Post April 2008	-0.039	-0.041	-0.105	-0.101	-0.235	-0.271
SE (EHW)	(0.0555)	(0.0565)	(0.0384)***	(0.0389)***	(0.0250)***	(0.0270)***
%Δ	-3.9	-4.0	-10.0	-9.6	-21.0	-23.7
%Δ (95% CI – EHW)	[-13.8, 7.2]	[-14.1, 7.2]	[-16.5, -3.0]	[-16.3, -2.5]	[-24.8, -17.0]	[-27.7, -19.6]
Linear – Levels						
Post April 2008	-0.004	-0.002	-0.008	-0.005	-0.019	-0.014
SE (EHW)	(0.0039)	(0.0042)	(0.0028)***	(0.0028)*	(0.0020)***	(0.0020)***
%Δ	-4.3	-2.9	-9.2	-5.9	-17.2	-12.7
%Δ (95% CI – EHW)	[-13.7, 5.1]	[-13.0, 7.2]	[-15.2, -3.2]	[-12.1, 0.3]	[-20.7, -13.6]	[-16.3, -9.1]
Linear – IHS						
Post April 2008	-0.003	-0.002	-0.007	-0.005	-0.016	-0.012
SE (EHW)	(0.0034)	(0.0037)	(0.0024)***	(0.0025)*	(0.0017)***	(0.0018)***
%Δ	-0.3	-0.2	-0.7	-0.5	-1.6	-1.2
%Δ (95% CI – EHW)	[-1.0, 0.4]	[-0.9, 0.5]	[-1.2, -0.3]	[-1.0, 0.0]	[-2.0, -1.3]	[-1.6, -0.9]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.042	0.044	-0.110	-0.030	-0.282	-0.030
SE (EHW)	(0.0555)	(0.1004)	(0.0391)***	(0.0576)	(0.0266)***	(0.0402)
%Δ	-4.1	4.5	-10.4	-2.9	-24.6	-3.0
%Δ (95% CI – EHW)	[-14.0, 6.9]	[-14.2, 27.2]	[-17.0, -3.3]	[-13.3, 8.7]	[-28.4, -20.5]	[-10.3, 5.0]
Linear – Levels						
Post April 2008	-0.003	0.004	-0.006	-0.002	-0.015	0.001
SE (EHW)	(0.0040)	(0.0076)	(0.0028)**	(0.0044)	(0.0020)***	(0.0030)
%Δ	-3.7	5.1	-6.8	-2.6	-14.1	1.4
%Δ (95% CI – EHW)	[-13.4, 6.0]	[-13.3, 23.4]	[-12.9, -0.7]	[-12.1, 6.8]	[-17.7, -10.5]	[-4.0, 6.7]
Linear – IHS						
Post April 2008	-0.003	0.004	-0.005	-0.002	-0.014	0.001
SE (EHW)	(0.0036)	(0.0067)	(0.0025)**	(0.0038)	(0.0018)***	(0.0026)
%Δ	-0.3	0.4	-0.5	-0.2	-1.3	0.1
%Δ (95% CI – EHW)	[-1.0, 0.4]	[-0.9, 1.7]	[-1.0, -0.1]	[-1.0, 0.5]	[-1.7, -1.0]	[-0.4, 0.6]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations from researchers in a poor/developing country. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table K.2.4. Dummy for Lifetime Cites from Researchers in a Poor/Developing Country (RD)

Bandwidth	***6***		***12***		***24***	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Order 1 (Linear)	[0.202]		[0.211]		[0.232]	
Poisson						
Post April 2008	-0.021	-0.035	-0.028	-0.029	-0.052	-0.052
SE (EHW)	(0.0316)	(0.0325)	(0.0223)	(0.0223)	(0.0154)***	(0.0156)***
%Δ	-2.0	-3.4	-2.8	-2.9	-5.1	-5.1
%Δ (95% CI – EHW)	[-7.9, 4.2]	[-9.4, 2.9]	[-6.9, 1.6]	[-7.0, 1.5]	[-7.9, -2.2]	[-8.0, -2.2]
Linear – Levels						
Post April 2008	-0.004	-0.007	-0.006	-0.005	-0.011	-0.008
SE (EHW)	(0.0060)	(0.0064)	(0.0042)	(0.0043)	(0.0030)***	(0.0030)**
%Δ	-2.1	-3.3	-2.8	-2.4	-4.6	-3.3
%Δ (95% CI – EHW)	[-7.9, 3.7]	[-9.5, 2.8]	[-6.7, 1.1]	[-6.4, 1.6]	[-7.1, -2.1]	[-5.8, -0.8]
Linear – IHS						
Post April 2008	-0.004	-0.006	-0.005	-0.005	-0.010	-0.007
SE (EHW)	(0.0053)	(0.0056)	(0.0037)	(0.0038)	(0.0026)***	(0.0027)**
%Δ	-0.4	-0.6	-0.5	-0.5	-0.9	-0.7
%Δ (95% CI – EHW)	[-1.4, 0.7]	[-1.7, 0.5]	[-1.2, 0.2]	[-1.2, 0.3]	[-1.5, -0.4]	[-1.2, -0.2]
Panel B: Order 2 (Quadratic)						
Poisson						
Post April 2008	-0.029	0.012	-0.028	-0.038	-0.055	-0.009
SE (EHW)	(0.0318)	(0.0580)	(0.0223)	(0.0334)	(0.0156)***	(0.0230)
%Δ	-2.9	1.2	-2.7	-3.7	-5.3	-0.9
%Δ (95% CI – EHW)	[-8.8, 3.4]	[-9.7, 13.4]	[-6.9, 1.6]	[-9.8, 2.8]	[-8.2, -2.4]	[-5.3, 3.7]
Linear – Levels						
Post April 2008	-0.006	0.003	-0.005	-0.008	-0.009	-0.001
SE (EHW)	(0.0062)	(0.0114)	(0.0043)	(0.0066)	(0.0030)***	(0.0045)
%Δ	-3.0	1.3	-2.4	-3.8	-3.7	-0.5
%Δ (95% CI – EHW)	[-8.9, 3.0]	[-9.7, 12.4]	[-6.3, 1.6]	[-10.0, 2.3]	[-6.2, -1.2]	[-4.3, 3.3]
Linear – IHS						
Post April 2008	-0.005	0.002	-0.004	-0.007	-0.008	-0.001
SE (EHW)	(0.0054)	(0.0101)	(0.0038)	(0.0058)	(0.0026)***	(0.0039)
%Δ	-0.5	0.2	-0.4	-0.7	-0.8	-0.1
%Δ (95% CI – EHW)	[-1.6, 0.5]	[-1.7, 2.2]	[-1.2, 0.3]	[-1.8, 0.4]	[-1.3, -0.2]	[-0.9, 0.7]
Observations	76,205	76,205	160,046	160,046	329,081	329,081
Polynomial Switch		Yes		Yes		Yes

Notes – This table displays the regression discontinuity estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations from researchers in a poor/developing country. In columns (1) and (2), the bandwidth is 6 months before and after the implementation of the PAP in April 2008, and so the sample consists of NIH articles published during this period. Similarly, in columns (3) and (4) and (5) and (6) the sample consists of all NIH articles published 12 and 24 months before and after the PAP. In Panel A, the polynomial in months is linear and in Panel B, it is quadratic. In the odd columns, the polynomials are forced to be the same both before and after the PAP. In the even columns, the polynomials can differ across the threshold. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the main text. The numbers in parentheses below are the standard errors (Eicker-Huber-White – EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals.

Table K.3.1. Count of 2-Year Cites from Researchers in a Poor/Developing Country (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.158]				[0.158]				[0.159]				[0.159]		
Poisson																
NIH × Post April 2008	-0.422	-0.258	-0.333	-0.268	-0.250	-0.072	-0.199	-0.123	-0.332	-0.207	-0.230	-0.126	-0.100	-0.040	-0.043	0.039
NIH × Post April 2008 × TA	0.277	0.153	0.210	0.156	0.151	-0.001	0.099	0.033	0.174	0.093	0.078	0.015	-0.019	-0.039	-0.077	-0.111
SE (Clustered)	(0.1084)**	(0.0972)	(0.0980)**	(0.1007)	(0.0975)	(0.1017)	(0.0956)	(0.0964)	(0.1010)*	(0.0996)	(0.0896)	(0.0934)	(0.1355)	(0.1280)	(0.1278)	(0.1245)
SE (EHW)	(0.0870)***	(0.0863)*	(0.0529)***	(0.0530)***	(0.0874)*	(0.0847)	(0.0537)*	(0.0538)	(0.0865)**	(0.0872)	(0.0561)	(0.0563)	(0.1244)	(0.1185)	(0.0688)	(0.0693)
%Δ	31.9	16.5	23.4	16.9	16.3	-0.1	10.4	3.3	19.0	9.8	8.2	1.5	-1.9	-3.8	-7.4	-10.5
%Δ (95% CI – Clustered)	[6.6, 63.1]	[-3.7, 40.9]	[1.8, 49.5]	[-4.1, 42.4]	[-3.9, 40.8]	[-18.1, 21.9]	[-8.5, 33.1]	[-14.5, 24.8]	[-2.4, 45.0]	[-9.7, 33.5]	[-9.3, 28.9]	[-15.5, 21.9]	[-24.8, 28.0]	[-25.2, 23.6]	[-27.9, 19.0]	[-29.9, 14.2]
%Δ (95% CI – EHW)	[11.2, 56.4]	[-1.6, 38.0]	[11.2, 36.8]	[5.4, 29.7]	[-2.0, 38.0]	[-15.4, 17.9]	[-0.6, 22.6]	[-7.0, 14.8]	[0.4, 41.0]	[-7.5, 30.3]	[-3.1, 20.7]	[-9.1, 13.4]	[-23.1, 25.2]	[-23.8, 21.3]	[-19.1, 6.0]	[-21.9, 2.5]
Observations	2,103,480		1,923,965		1,707,823		1,620,116		1,203,393		1,097,390		451,968		410,990	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.073	-0.058	-0.060	-0.057	-0.039	-0.019	-0.029	-0.024	-0.057	-0.047	-0.041	-0.033	-0.013	-0.004	-0.002	0.007
NIH × Post April 2008 × TA	0.043	0.031	0.032	0.030	0.025	0.007	0.016	0.013	0.034	0.028	0.019	0.014	0.010	0.005	-0.001	-0.006
SE (Clustered)	(0.0167)**	(0.0165)*	(0.0154)**	(0.0156)*	(0.0170)	(0.0187)	(0.0167)	(0.0167)	(0.0169)**	(0.0173)	(0.0151)	(0.0155)	(0.0220)	(0.0214)	(0.0203)	(0.0202)
SE (EHW)	(0.0133)***	(0.0131)**	(0.0132)**	(0.0130)**	(0.0141)*	(0.0136)	(0.0138)	(0.0135)	(0.0138)**	(0.0135)**	(0.0136)	(0.0134)	(0.0187)	(0.0181)	(0.0186)	(0.0182)
%Δ	27.0	19.8	20.5	19.3	15.6	4.5	10.0	8.0	21.6	17.3	12.0	9.0	6.4	3.1	-0.3	-3.9
%Δ (95% CI – Clustered)	[6.3, 47.7]	[-0.6, 40.3]	[1.4, 39.6]	[-0.2, 38.7]	[-5.5, 36.7]	[-18.7, 27.7]	[-10.7, 30.7]	[-12.8, 28.7]	[0.7, 42.5]	[-4.0, 38.7]	[-6.7, 30.7]	[-10.1, 28.1]	[-20.6, 33.4]	[-23.2, 29.4]	[-25.3, 24.6]	[-28.8, 20.9]
%Δ (95% CI – EHW)	[10.5, 43.6]	[3.6, 36.1]	[4.1, 36.9]	[3.1, 35.4]	[-1.9, 33.1]	[-12.4, 21.4]	[-7.0, 27.1]	[-8.8, 24.8]	[4.7, 38.6]	[0.7, 34.0]	[-4.8, 28.8]	[-7.5, 25.6]	[-16.6, 29.4]	[-19.2, 25.4]	[-23.3, 22.6]	[-26.3, 18.4]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.051	-0.041	-0.043	-0.041	-0.027	-0.014	-0.021	-0.018	-0.039	-0.031	-0.028	-0.023	-0.007	-0.000	-0.000	0.006
NIH × Post April 2008 × TA	0.027	0.019	0.021	0.019	0.013	0.002	0.009	0.007	0.023	0.018	0.013	0.010	0.010	0.006	0.003	-0.001
SE (Clustered)	(0.0114)**	(0.0114)*	(0.0110)*	(0.0111)*	(0.0118)	(0.0125)	(0.0116)	(0.0116)	(0.0118)*	(0.0121)	(0.0109)	(0.0113)	(0.0137)	(0.0136)	(0.0130)	(0.0132)
SE (EHW)	(0.0075)***	(0.0073)***	(0.0074)***	(0.0073)***	(0.0078)*	(0.0076)	(0.0077)	(0.0076)	(0.0081)***	(0.0079)**	(0.0080)	(0.0078)	(0.0106)	(0.0103)	(0.0105)	(0.0103)
%Δ	2.7	1.9	2.1	1.9	1.3	0.2	0.9	0.7	2.3	1.8	1.3	1.0	1.0	0.6	0.3	-0.1
%Δ (95% CI – Clustered)	[0.4, 5.0]	[-0.3, 4.2]	[-0.1, 4.3]	[-0.3, 4.2]	[-1.0, 3.7]	[-2.2, 2.7]	[-1.3, 3.2]	[-1.6, 3.0]	[-0.0, 4.7]	[-0.6, 4.3]	[-0.8, 3.5]	[-1.2, 3.2]	[-1.7, 3.7]	[-2.1, 3.3]	[-2.2, 2.9]	[-2.6, 2.6]
%Δ (95% CI – EHW)	[1.2, 4.2]	[0.5, 3.4]	[0.6, 3.6]	[0.5, 3.4]	[-0.2, 2.9]	[-1.2, 1.7]	[-0.6, 2.5]	[-0.8, 2.2]	[0.7, 3.9]	[0.3, 3.4]	[-0.3, 2.9]	[-0.6, 2.6]	[-1.1, 3.1]	[-1.4, 2.6]	[-1.7, 2.4]	[-2.0, 2.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.165]				[0.165]				[0.166]				[0.167]		
Poisson																
NIH × Post April 2008	-0.456	-0.227	-0.320	-0.200	-0.247	-0.083	-0.228	-0.096	-0.395	-0.227	-0.234	-0.073	-0.168	-0.057	-0.062	0.053
NIH × Post April 2008 × TA	0.282	0.185	0.195	0.149	0.134	0.070	0.126	0.068	0.234	0.186	0.081	0.035	0.137	0.121	0.013	-0.009
SE (Clustered)	(0.0958)***	(0.0850)**	(0.0867)**	(0.0828)*	(0.0887)	(0.1024)	(0.0872)	(0.0790)	(0.0986)**	(0.0829)**	(0.0700)	(0.0672)	(0.0977)	(0.0900)	(0.0779)	(0.0888)
SE (EHW)	(0.0516)***	(0.0508)***	(0.0316)***	(0.0317)***	(0.0522)**	(0.0512)	(0.0320)***	(0.0320)**	(0.0545)***	(0.0531)***	(0.0335)**	(0.0336)	(0.0713)*	(0.0693)*	(0.0406)	(0.0409)
%Δ	32.5	20.3	21.6	16.1	14.3	7.3	13.4	7.1	26.3	20.4	8.4	3.6	14.7	12.9	1.3	-0.9
%Δ (95% CI – Clustered)	[9.9, 59.9]	[1.8, 42.1]	[2.6, 44.1]	[-1.3, 36.5]	[-3.9, 36.1]	[-12.2, 31.1]	[-4.4, 34.6]	[-8.3, 25.0]	[4.1, 53.2]	[2.4, 41.7]	[-5.5, 24.3]	[-9.2, 18.2]	[-5.3, 38.9]	[-5.4, 34.7]	[-13.0, 18.1]	[-16.7, 18.0]
%Δ (95% CI – EHW)	[19.8, 46.6]	[8.9, 32.9]	[14.3, 29.3]	[9.1, 23.5]	[3.2, 26.7]	[-3.0, 18.6]	[6.5, 20.8]	[0.6, 14.0]	[13.5, 40.5]	[8.5, 33.6]	[1.5, 15.7]	[-3.0, 10.6]	[-0.2, 31.9]	[-1.5, 29.3]	[-6.4, 9.7]	[-8.5, 7.4]
Observations	6,108,951		5,748,131		4,918,431		4,745,695		3,067,679		2,888,474		1,288,882		1,213,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.083	-0.058	-0.061	-0.052	-0.046	-0.026	-0.038	-0.026	-0.067	-0.049	-0.040	-0.024	-0.021	-0.008	-0.002	0.012
NIH × Post April 2008 × TA	0.049	0.033	0.033	0.028	0.029	0.019	0.023	0.018	0.047	0.041	0.021	0.016	0.029	0.027	0.008	0.005
SE (Clustered)	(0.0161)***	(0.0154)**	(0.0137)**	(0.0133)**	(0.0161)*	(0.0181)	(0.0154)	(0.0141)	(0.0168)***	(0.0150)***	(0.0130)	(0.0126)	(0.0184)	(0.0172)	(0.0147)	(0.0156)
SE (EHW)	(0.0088)***	(0.0086)***	(0.0088)***	(0.0087)***	(0.0091)***	(0.0089)**	(0.0091)**	(0.0089)**	(0.0095)***	(0.0092)***	(0.0095)**	(0.0093)*	(0.0123)**	(0.0120)**	(0.0123)	(0.0120)
%Δ	29.8	20.2	19.9	17.2	17.3	11.4	14.2	10.9	28.2	24.9	12.5	9.6	17.4	16.0	5.0	2.8
%Δ (95% CI – Clustered)	[10.6, 49.0]	[1.9, 38.4]	[3.5, 36.2]	[1.5, 33.0]	[-1.8, 36.5]	[-10.1, 32.9]	[-4.1, 32.5]	[-5.8, 27.7]	[8.4, 48.0]	[7.2, 42.6]	[-2.9, 27.8]	[-5.4, 24.5]	[-4.2, 39.0]	[-4.2, 36.2]	[-12.3, 22.3]	[-15.5, 21.1]
%Δ (95% CI – EHW)	[19.4, 40.3]	[9.9, 30.4]	[9.4, 30.3]	[6.9, 27.5]	[6.5, 28.2]	[0.8, 22.0]	[3.4, 25.0]	[0.3, 21.6]	[17.0, 39.4]	[14.0, 35.8]	[1.3, 23.7]	[-1.4, 20.5]	[3.0, 31.9]	[2.0, 30.1]	[-9.4, 19.4]	[-11.3, 16.8]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.054	-0.037	-0.040	-0.034	-0.027	-0.015	-0.024	-0.016	-0.041	-0.028	-0.025	-0.014	-0.009	0.000	0.002	0.011
NIH × Post April 2008 × TA	0.027	0.017	0.018	0.015	0.012	0.006	0.011	0.007	0.025	0.021	0.010	0.006	0.015	0.013	0.003	0.001
SE (Clustered)	(0.0094)***	(0.0091)*	(0.0087)**	(0.0084)*	(0.0103)	(0.0112)	(0.0101)	(0.0094)	(0.0107)**	(0.0096)**	(0.0085)	(0.0084)	(0.0116)	(0.0107)	(0.0094)	(0.0101)
SE (EHW)	(0.0047)***	(0.0046)***	(0.0047)***	(0.0046)***	(0.0049)**	(0.0048)	(0.0049)**	(0.0048)	(0.0051)***	(0.0050)***	(0.0051)*	(0.0050)	(0.0067)**	(0.0065)**	(0.0067)	(0.0065)
%Δ	2.7	1.7	1.8	1.5	1.2	0.6	1.1	0.7	2.5	2.1	1.0	0.7	1.6	1.4	0.3	0.1
%Δ (95% CI – Clustered)	[0.8, 4.6]	[-0.1, 3.5]	[0.1, 3.5]	[-0.2, 3.2]	[-0.8, 3.2]	[-1.6, 2.8]	[-0.9, 3.1]	[-1.1, 2.6]	[0.4, 4.7]	[0.2, 4.0]	[-0.7, 2.7]	[-1.0, 2.3]	[-0.7, 3.9]	[-0.7, 3.5]	[-1.5, 2.2]	[-1.9, 2.1]
%Δ (95% CI – EHW)	[1.8, 3.6]	[0.8, 2.6]	[0.9, 2.7]	[0.6, 2.4]	[0.2, 2.1]	[-0.3, 1.5]	[0.1, 2.1]	[-0.2, 1.7]	[1.5, 3.5]	[1.1, 3.1]	[-0.0, 2.0]	[-0.3, 1.6]	[0.2, 2.9]	[0.1, 2.7]	[-1.0, 1.6]	[-1.2, 1.4]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.3.2. Count of Lifetime Cites from Researchers in a Poor/Developing Country (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.474]				[0.474]				[0.477]				[0.479]		
Poisson																
NIH × Post April 2008	-0.160	-0.034	-0.127	-0.085	-0.021	0.100	-0.075	-0.021	-0.206	-0.099	-0.109	-0.035	-0.045	0.010	0.002	0.060
NIH × Post April 2008 × TA	0.120	0.021	0.100	0.058	0.012	-0.096	0.056	0.002	0.129	0.055	0.033	-0.016	-0.017	-0.039	-0.065	-0.090
SE (Clustered)	(0.0789)	(0.0781)	(0.0719)	(0.0706)	(0.0931)	(0.1075)	(0.0722)	(0.0688)	(0.0905)	(0.0878)	(0.0769)	(0.0747)	(0.1091)	(0.1000)	(0.0974)	(0.0934)
SE (EHW)	(0.0735)	(0.0729)	(0.0285)***	(0.0286)**	(0.0748)	(0.0739)	(0.0290)*	(0.0291)	(0.0763)*	(0.0766)	(0.0304)	(0.0305)	(0.1012)	(0.0981)	(0.0375)*	(0.0377)**
%Δ	12.8	2.2	10.5	5.9	1.2	-9.2	5.8	0.2	13.8	5.6	3.3	-1.6	-1.7	-3.8	-6.3	-8.6
%Δ (95% CI – Clustered)	[-3.4, 31.6]	[-12.3, 19.1]	[-4.0, 27.2]	[-7.7, 21.7]	[-15.7, 21.4]	[-26.4, 12.1]	[-8.2, 21.8]	[-12.5, 14.6]	[-4.7, 35.9]	[-11.1, 25.4]	[-11.1, 20.1]	[-15.0, 14.0]	[-20.6, 21.8]	[-21.0, 17.0]	[-22.6, 13.4]	[-23.9, 9.8]
%Δ (95% CI – EHW)	[-2.4, 30.2]	[-11.4, 17.9]	[4.5, 16.8]	[0.2, 12.1]	[-12.6, 17.2]	[-21.4, 5.0]	[-0.1, 11.9]	[-5.4, 6.0]	[-2.0, 32.1]	[-9.1, 22.7]	[-2.7, 9.7]	[-7.3, 4.5]	[-19.4, 19.9]	[-20.6, 16.5]	[-13.0, 0.8]	[-15.1, -1.6]
Observations	2,103,480		1,985,494		1,707,823		1,650,425		1,203,393		1,136,891		451,968		426,040	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.147	-0.115	-0.119	-0.113	-0.042	-0.002	-0.048	-0.037	-0.141	-0.114	-0.087	-0.068	-0.030	-0.003	0.002	0.026
NIH × Post April 2008 × TA	0.084	0.057	0.062	0.054	0.013	-0.023	0.021	0.010	0.087	0.066	0.035	0.021	0.010	-0.007	-0.021	-0.037
SE (Clustered)	(0.0444)*	(0.0460)	(0.0392)	(0.0400)	(0.0473)	(0.0517)	(0.0402)	(0.0398)	(0.0490)*	(0.0501)	(0.0411)	(0.0423)	(0.0620)	(0.0606)	(0.0549)	(0.0545)
SE (EHW)	(0.0400)**	(0.0393)	(0.0390)	(0.0386)	(0.0420)	(0.0409)	(0.0409)	(0.0403)	(0.0428)**	(0.0419)	(0.0420)	(0.0413)	(0.0583)	(0.0567)	(0.0578)	(0.0567)
%Δ	17.8	12.1	13.0	11.5	2.8	-4.8	4.4	2.2	18.3	13.8	7.3	4.3	2.1	-1.5	-4.5	-7.8
%Δ (95% CI – Clustered)	[-0.6, 36.1]	[-6.9, 31.2]	[-3.2, 29.2]	[-5.1, 28.0]	[-16.8, 22.4]	[-26.2, 16.6]	[-12.3, 21.0]	[-14.3, 18.6]	[-1.9, 38.4]	[-6.7, 34.4]	[-9.5, 24.2]	[-13.1, 21.7]	[-23.3, 27.5]	[-26.3, 23.3]	[-26.9, 18.0]	[-30.0, 14.5]
%Δ (95% CI – EHW)	[1.2, 34.3]	[-4.1, 28.4]	[-3.1, 29.2]	[-4.5, 27.4]	[-14.5, 20.2]	[-21.7, 12.1]	[-12.6, 21.3]	[-14.5, 18.8]	[0.7, 35.8]	[-3.4, 31.0]	[-9.9, 24.6]	[-12.7, 21.3]	[-21.7, 25.9]	[-24.7, 21.7]	[-28.1, 19.2]	[-30.9, 15.4]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.072	-0.054	-0.063	-0.059	-0.023	-0.003	-0.029	-0.023	-0.067	-0.051	-0.045	-0.035	-0.018	-0.004	-0.006	0.004
NIH × Post April 2008 × TA	0.036	0.022	0.031	0.027	0.004	-0.013	0.012	0.007	0.041	0.029	0.021	0.014	0.017	0.008	0.006	-0.000
SE (Clustered)	(0.0177)**	(0.0182)	(0.0167)*	(0.0167)	(0.0200)	(0.0222)	(0.0167)	(0.0164)	(0.0188)**	(0.0191)	(0.0161)	(0.0167)	(0.0191)	(0.0191)	(0.0174)	(0.0178)
SE (EHW)	(0.0130)***	(0.0126)*	(0.0125)**	(0.0122)**	(0.0135)	(0.0130)	(0.0130)	(0.0127)	(0.0140)***	(0.0135)**	(0.0135)	(0.0131)	(0.0181)	(0.0172)	(0.0174)	(0.0168)
%Δ	3.7	2.2	3.1	2.7	0.4	-1.3	1.2	0.7	4.1	2.9	2.1	1.4	1.7	0.8	0.6	-0.0
%Δ (95% CI – Clustered)	[0.1, 7.4]	[-1.4, 5.9]	[-0.2, 6.6]	[-0.6, 6.1]	[-3.4, 4.4]	[-5.5, 3.1]	[-2.0, 4.6]	[-2.5, 4.0]	[0.4, 8.1]	[-0.8, 6.8]	[-1.1, 5.4]	[-1.9, 4.8]	[-2.0, 5.6]	[-2.9, 4.7]	[-2.8, 4.1]	[-3.5, 3.5]
%Δ (95% CI – EHW)	[1.1, 6.4]	[-0.3, 4.8]	[0.6, 5.7]	[0.3, 5.2]	[-2.2, 3.1]	[-3.8, 1.2]	[-1.3, 3.9]	[-1.8, 3.2]	[1.3, 7.0]	[0.2, 5.7]	[-0.6, 4.8]	[-1.2, 4.0]	[-1.8, 5.4]	[-2.5, 4.3]	[-2.8, 4.1]	[-3.3, 3.3]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.748]				[0.748]				[0.752]				[0.758]		
Poisson																
NIH × Post April 2008	-0.331	-0.143	-0.241	-0.135	-0.146	-0.018	-0.190	-0.077	-0.355	-0.203	-0.222	-0.091	-0.210	-0.119	-0.116	-0.031
NIH × Post April 2008 × TA	0.205	0.120	0.141	0.093	0.074	0.018	0.106	0.050	0.240	0.165	0.091	0.041	0.170	0.150	0.050	0.035
SE (Clustered)	(0.1007)**	(0.0935)	(0.0817)*	(0.0609)	(0.1048)	(0.1197)	(0.0828)	(0.0582)	(0.1097)**	(0.0956)*	(0.0755)	(0.0581)	(0.0907)*	(0.0821)*	(0.0636)	(0.0617)
SE (EHW)	(0.0446)***	(0.0440)***	(0.0177)***	(0.0177)***	(0.0455)	(0.0448)	(0.0179)***	(0.0180)***	(0.0479)***	(0.0475)***	(0.0188)***	(0.0189)**	(0.0603)***	(0.0601)**	(0.0230)**	(0.0231)
%Δ	22.7	12.8	15.1	9.8	7.6	1.8	11.2	5.1	27.2	17.9	9.6	4.2	18.5	16.2	5.1	3.6
%Δ (95% CI – Clustered)	[0.7, 49.5]	[-6.1, 35.4]	[-1.9, 35.1]	[-2.6, 23.7]	[-12.4, 32.2]	[-19.5, 28.8]	[-5.5, 30.8]	[-6.2, 17.8]	[2.6, 57.7]	[-2.2, 42.2]	[-5.5, 27.1]	[-7.0, 16.8]	[-0.8, 41.6]	[-1.1, 36.5]	[-7.2, 19.1]	[-8.2, 16.9]
%Δ (95% CI – EHW)	[12.4, 33.9]	[3.4, 22.9]	[11.2, 19.2]	[6.0, 13.7]	[-1.6, 17.7]	[-6.7, 11.2]	[7.3, 15.2]	[1.5, 8.9]	[15.8, 39.7]	[7.4, 29.4]	[5.6, 13.7]	[0.4, 8.1]	[5.3, 33.4]	[3.3, 30.7]	[0.5, 10.0]	[-1.0, 8.4]
Observations	6,108,951		5,861,840		4,918,431		4,789,973		3,067,679		2,947,474		1,288,882		1,238,496	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.368	-0.288	-0.263	-0.224	-0.172	-0.126	-0.138	-0.098	-0.281	-0.222	-0.174	-0.122	-0.124	-0.082	-0.060	-0.024
NIH × Post April 2008 × TA	0.181	0.132	0.099	0.073	0.072	0.050	0.045	0.023	0.175	0.150	0.074	0.054	0.123	0.106	0.056	0.043
SE (Clustered)	(0.0747)**	(0.0704)*	(0.0647)	(0.0600)	(0.0747)	(0.0730)	(0.0683)	(0.0610)	(0.0685)**	(0.0634)**	(0.0598)	(0.0558)	(0.0663)*	(0.0638)*	(0.0557)	(0.0566)
SE (EHW)	(0.0335)***	(0.0331)***	(0.0331)***	(0.0328)**	(0.0347)**	(0.0342)	(0.0344)	(0.0340)	(0.0358)***	(0.0352)***	(0.0358)**	(0.0353)	(0.0448)***	(0.0438)**	(0.0443)	(0.0436)
%Δ	24.1	17.6	13.2	9.8	9.6	6.7	6.1	3.1	23.3	19.9	9.8	7.2	16.2	14.0	7.3	5.7
%Δ (95% CI – Clustered)	[4.6, 43.7]	[-0.9, 36.0]	[-3.7, 30.1]	[-5.9, 25.5]	[-10.0, 29.2]	[-12.4, 25.9]	[-11.8, 24.0]	[-12.9, 19.0]	[5.4, 41.2]	[3.4, 36.5]	[-5.7, 25.4]	[-7.4, 21.7]	[-0.9, 33.4]	[-2.5, 30.5]	[-7.1, 21.8]	[-8.9, 20.3]
%Δ (95% CI – EHW)	[15.4, 32.9]	[8.9, 26.2]	[4.5, 21.9]	[1.2, 18.4]	[0.5, 18.7]	[-2.2, 15.7]	[-3.0, 15.1]	[-5.9, 12.0]	[14.0, 32.6]	[10.7, 29.1]	[0.5, 19.2]	[-2.0, 16.4]	[4.6, 27.8]	[2.7, 25.3]	[-4.1, 18.8]	[-5.6, 17.0]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.159	-0.120	-0.120	-0.102	-0.073	-0.053	-0.068	-0.049	-0.121	-0.089	-0.079	-0.055	-0.047	-0.026	-0.020	-0.003
NIH × Post April 2008 × TA	0.057	0.036	0.034	0.022	0.014	0.006	0.015	0.004	0.062	0.048	0.026	0.017	0.048	0.038	0.019	0.013
SE (Clustered)	(0.0271)**	(0.0246)	(0.0248)	(0.0222)	(0.0284)	(0.0272)	(0.0260)	(0.0223)	(0.0269)**	(0.0237)**	(0.0223)	(0.0204)	(0.0245)*	(0.0229)	(0.0195)	(0.0201)
SE (EHW)	(0.0086)***	(0.0083)***	(0.0084)***	(0.0082)***	(0.0089)	(0.0086)	(0.0087)*	(0.0084)	(0.0093)***	(0.0089)***	(0.0090)***	(0.0088)*	(0.0119)***	(0.0114)***	(0.0116)*	(0.0112)
%Δ	5.9	3.6	3.5	2.2	1.4	0.6	1.5	0.4	6.4	4.9	2.7	1.7	4.9	3.8	2.0	1.3
%Δ (95% CI – Clustered)	[0.4, 11.7]	[-1.2, 8.8]	[-1.4, 8.6]	[-2.2, 6.7]	[-4.1, 7.2]	[-4.6, 6.1]	[-3.5, 6.8]	[-3.9, 4.9]	[0.9, 12.1]	[0.2, 9.9]	[-1.7, 7.3]	[-2.3, 5.8]	[-0.0, 10.0]	[-0.7, 8.6]	[-1.9, 5.9]	[-2.6, 5.4]
%Δ (95% CI – EHW)	[4.1, 7.7]	[2.0, 5.4]	[1.8, 5.2]	[0.6, 3.8]	[-0.3, 3.2]	[-1.1, 2.3]	[-0.2, 3.3]	[-1.2, 2.1]	[4.5, 8.3]	[3.1, 6.8]	[0.9, 4.5]	[-0.1, 3.4]	[2.5, 7.4]	[1.5, 6.2]	[-0.3, 4.3]	[-0.9, 3.6]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.3.3. Dummy for Positive 2-Year Cites from Researchers in a Poor/Developing Country (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.111]				[0.111]				[0.111]				[0.112]		
Poisson																
NIH × Post April 2008	-0.347	-0.216	-0.281	-0.236	-0.176	-0.048	-0.155	-0.100	-0.247	-0.142	-0.162	-0.092	-0.043	0.013	-0.001	0.049
NIH × Post April 2008 × TA	0.211	0.118	0.168	0.139	0.082	-0.022	0.069	0.030	0.143	0.078	0.069	0.032	0.038	0.017	0.003	-0.018
SE (Clustered)	(0.0897)**	(0.0826)	(0.0847)**	(0.0858)	(0.0850)	(0.0847)	(0.0818)	(0.0816)	(0.0852)*	(0.0833)	(0.0767)	(0.0791)	(0.0908)	(0.0904)	(0.0861)	(0.0910)
SE (EHW)	(0.0599)***	(0.0598)**	(0.0637)***	(0.0638)**	(0.0607)	(0.0606)	(0.0648)	(0.0649)	(0.0637)**	(0.0637)	(0.0677)	(0.0679)	(0.0776)	(0.0768)	(0.0832)	(0.0835)
%Δ	23.4	12.5	18.3	14.9	8.6	-2.1	7.1	3.0	15.4	8.2	7.2	3.3	3.9	1.7	0.3	-1.8
%Δ (95% CI – Clustered)	[3.5, 47.1]	[-4.3, 32.3]	[0.2, 39.7]	[-2.9, 36.0]	[-8.1, 28.3]	[-17.1, 15.5]	[-8.8, 25.7]	[-12.2, 20.9]	[-2.4, 36.3]	[-8.1, 27.3]	[-7.8, 24.5]	[-11.6, 20.6]	[-13.1, 24.1]	[-14.8, 21.4]	[-15.3, 18.7]	[-17.8, 17.4]
%Δ (95% CI – EHW)	[9.8, 38.8]	[0.1, 26.5]	[4.4, 34.0]	[1.4, 30.2]	[-3.6, 22.3]	[-13.1, 10.2]	[-5.7, 21.6]	[-9.3, 17.0]	[1.9, 30.7]	[-4.5, 22.5]	[-6.2, 22.4]	[-9.6, 18.0]	[-10.8, 20.9]	[-12.5, 18.2]	[-14.8, 18.0]	[-16.6, 15.7]
Observations	2,103,480		1,923,965		1,707,823		1,620,116		1,203,393		1,097,390		451,968		410,990	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.044	-0.036	-0.038	-0.036	-0.023	-0.013	-0.019	-0.017	-0.032	-0.026	-0.024	-0.020	-0.004	0.001	0.001	0.006
NIH × Post April 2008 × TA	0.022	0.015	0.017	0.016	0.010	0.001	0.007	0.006	0.018	0.014	0.010	0.008	0.007	0.004	0.002	-0.000
SE (Clustered)	(0.0100)**	(0.0099)	(0.0097)*	(0.0098)	(0.0104)	(0.0107)	(0.0101)	(0.0100)	(0.0101)*	(0.0104)	(0.0096)	(0.0098)	(0.0115)	(0.0116)	(0.0111)	(0.0113)
SE (EHW)	(0.0064)***	(0.0063)**	(0.0064)***	(0.0063)**	(0.0067)	(0.0066)	(0.0066)	(0.0065)	(0.0069)***	(0.0068)**	(0.0069)	(0.0068)	(0.0090)	(0.0088)	(0.0090)	(0.0089)
%Δ	19.6	14.0	15.6	14.4	9.0	1.3	6.8	5.0	16.1	12.3	9.2	6.9	6.1	3.3	2.0	-0.3
%Δ (95% CI – Clustered)	[2.0, 37.2]	[-3.6, 31.5]	[-1.6, 32.8]	[-2.9, 31.7]	[-9.5, 27.5]	[-17.7, 20.3]	[-11.2, 24.7]	[-12.8, 22.9]	[-1.7, 33.9]	[-6.0, 30.6]	[-7.7, 26.0]	[-10.3, 24.2]	[-14.1, 26.3]	[-17.0, 23.6]	[-17.4, 21.5]	[-20.1, 19.5]
%Δ (95% CI – EHW)	[8.2, 31.0]	[2.7, 25.2]	[4.3, 26.9]	[3.2, 25.6]	[-2.9, 20.8]	[-10.4, 12.9]	[-5.0, 18.5]	[-6.5, 16.6]	[3.9, 28.3]	[0.3, 24.3]	[-2.9, 21.3]	[-5.0, 18.8]	[-9.7, 21.9]	[-12.2, 18.8]	[-13.7, 17.8]	[-15.8, 15.2]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.039	-0.031	-0.033	-0.032	-0.021	-0.012	-0.017	-0.015	-0.029	-0.023	-0.021	-0.017	-0.004	0.001	0.001	0.005
NIH × Post April 2008 × TA	0.019	0.014	0.015	0.014	0.009	0.001	0.007	0.005	0.016	0.012	0.009	0.007	0.006	0.003	0.002	-0.000
SE (Clustered)	(0.0088)**	(0.0087)	(0.0086)*	(0.0086)	(0.0092)	(0.0094)	(0.0089)	(0.0089)	(0.0089)*	(0.0091)	(0.0084)	(0.0086)	(0.0102)	(0.0102)	(0.0098)	(0.0100)
SE (EHW)	(0.0057)***	(0.0056)**	(0.0056)***	(0.0055)**	(0.0059)	(0.0058)	(0.0058)	(0.0058)	(0.0061)***	(0.0060)**	(0.0061)	(0.0060)	(0.0080)	(0.0078)	(0.0079)	(0.0078)
%Δ	1.9	1.4	1.5	1.4	0.9	0.1	0.7	0.5	1.6	1.2	0.9	0.7	0.6	0.3	0.2	-0.0
%Δ (95% CI – Clustered)	[0.2, 3.7]	[-0.3, 3.1]	[-0.2, 3.3]	[-0.3, 3.1]	[-0.9, 2.7]	[-1.7, 2.0]	[-1.1, 2.4]	[-1.2, 2.3]	[-0.2, 3.4]	[-0.6, 3.0]	[-0.7, 2.6]	[-1.0, 2.4]	[-1.4, 2.6]	[-1.7, 2.4]	[-1.7, 2.1]	[-2.0, 1.9]
%Δ (95% CI – EHW)	[0.8, 3.1]	[0.3, 2.5]	[0.4, 2.7]	[0.3, 2.5]	[-0.3, 2.1]	[-1.0, 1.3]	[-0.5, 1.8]	[-0.6, 1.6]	[0.4, 2.8]	[0.0, 2.4]	[-0.3, 2.1]	[-0.5, 1.9]	[-1.0, 2.2]	[-1.2, 1.9]	[-1.3, 1.8]	[-1.5, 1.5]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.114]				[0.114]				[0.115]				[0.116]		
Poisson																
NIH × Post April 2008	-0.351	-0.159	-0.250	-0.157	-0.136	-0.011	-0.151	-0.050	-0.259	-0.113	-0.143	-0.023	-0.073	0.018	0.001	0.084
NIH × Post April 2008 × TA	0.173	0.092	0.125	0.089	0.019	-0.026	0.052	0.007	0.123	0.077	0.021	-0.013	0.085	0.066	0.000	-0.018
SE (Clustered)	(0.0833)**	(0.0726)	(0.0809)	(0.0767)	(0.0811)	(0.0824)	(0.0807)	(0.0733)	(0.0841)	(0.0691)	(0.0628)	(0.0589)	(0.0738)	(0.0679)	(0.0581)	(0.0651)
SE (EHW)	(0.0360)***	(0.0355)***	(0.0387)***	(0.0387)**	(0.0365)	(0.0360)	(0.0392)	(0.0392)	(0.0382)***	(0.0378)**	(0.0411)	(0.0412)	(0.0461)*	(0.0454)	(0.0499)	(0.0501)
%Δ	18.9	9.7	13.4	9.3	1.9	-2.6	5.4	0.7	13.1	8.0	2.1	-1.3	8.9	6.8	0.0	-1.8
%Δ (95% CI – Clustered)	[1.0, 40.0]	[-4.9, 26.4]	[-3.3, 32.8]	[-5.9, 27.1]	[-13.1, 19.5]	[-17.1, 14.5]	[-10.0, 23.4]	[-12.8, 16.3]	[-4.1, 33.3]	[-5.7, 23.6]	[-9.7, 15.5]	[-12.0, 10.8]	[-5.8, 25.9]	[-6.5, 22.0]	[-10.7, 12.1]	[-13.5, 11.6]
%Δ (95% CI – EHW)	[10.8, 27.6]	[2.3, 17.6]	[5.1, 22.3]	[1.3, 18.0]	[-5.1, 9.5]	[-9.2, 4.6]	[-2.4, 13.8]	[-6.7, 8.8]	[4.9, 21.9]	[0.2, 16.2]	[-5.8, 10.7]	[-8.9, 7.0]	[-0.5, 19.2]	[-2.3, 16.7]	[-9.3, 10.3]	[-10.9, 8.4]
Observations	6,108,951		5,748,131		4,918,431		4,745,695		3,067,679		2,888,474		1,288,882		1,213,471	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.045	-0.031	-0.034	-0.029	-0.021	-0.011	-0.020	-0.013	-0.032	-0.021	-0.019	-0.011	-0.005	0.003	0.003	0.010
NIH × Post April 2008 × TA	0.019	0.011	0.013	0.010	0.005	0.001	0.006	0.003	0.017	0.013	0.005	0.003	0.010	0.008	0.001	-0.001
SE (Clustered)	(0.0076)**	(0.0073)	(0.0076)*	(0.0073)	(0.0089)	(0.0092)	(0.0089)	(0.0083)	(0.0089)*	(0.0080)	(0.0074)	(0.0073)	(0.0095)	(0.0088)	(0.0079)	(0.0085)
SE (EHW)	(0.0039)***	(0.0039)***	(0.0040)***	(0.0039)**	(0.0041)	(0.0040)	(0.0041)	(0.0040)	(0.0043)***	(0.0042)***	(0.0043)	(0.0042)	(0.0056)*	(0.0054)	(0.0056)	(0.0055)
%Δ	16.6	9.5	11.2	8.7	4.7	0.9	5.5	2.7	14.4	11.0	4.8	2.3	8.6	6.5	0.6	-1.2
%Δ (95% CI – Clustered)	[3.5, 29.6]	[-3.1, 22.1]	[-1.8, 24.2]	[-3.9, 21.2]	[-10.5, 19.9]	[-14.8, 16.7]	[-9.8, 20.7]	[-11.5, 16.9]	[-0.7, 29.5]	[-2.7, 24.6]	[-7.9, 17.4]	[-10.2, 14.8]	[-7.5, 24.7]	[-8.4, 21.5]	[-12.8, 14.1]	[-15.5, 13.1]
%Δ (95% CI – EHW)	[9.8, 23.3]	[2.9, 16.2]	[4.4, 18.0]	[2.0, 15.4]	[-2.3, 11.7]	[-6.0, 7.8]	[-1.5, 12.5]	[-4.2, 9.6]	[7.1, 21.7]	[3.8, 18.1]	[-2.6, 12.1]	[-4.9, 9.5]	[-0.8, 18.1]	[-2.7, 15.7]	[-8.8, 10.1]	[-10.5, 8.1]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.039	-0.027	-0.030	-0.025	-0.018	-0.010	-0.017	-0.012	-0.028	-0.018	-0.017	-0.009	-0.004	0.002	0.003	0.009
NIH × Post April 2008 × TA	0.017	0.010	0.011	0.009	0.005	0.001	0.006	0.003	0.015	0.011	0.005	0.002	0.009	0.007	0.001	-0.001
SE (Clustered)	(0.0067)**	(0.0065)	(0.0067)*	(0.0064)	(0.0078)	(0.0081)	(0.0078)	(0.0073)	(0.0078)*	(0.0070)	(0.0065)	(0.0064)	(0.0084)	(0.0078)	(0.0070)	(0.0075)
SE (EHW)	(0.0035)***	(0.0034)***	(0.0035)***	(0.0034)**	(0.0036)	(0.0035)	(0.0036)	(0.0035)	(0.0038)***	(0.0037)***	(0.0038)	(0.0037)	(0.0049)*	(0.0048)	(0.0049)	(0.0048)
%Δ	1.7	1.0	1.1	0.9	0.5	0.1	0.6	0.3	1.5	1.1	0.5	0.2	0.9	0.7	0.1	-0.1
%Δ (95% CI – Clustered)	[0.4, 3.0]	[-0.3, 2.3]	[-0.2, 2.5]	[-0.4, 2.2]	[-1.1, 2.0]	[-1.5, 1.7]	[-1.0, 2.1]	[-1.1, 1.7]	[-0.1, 3.0]	[-0.3, 2.5]	[-0.8, 1.8]	[-1.0, 1.5]	[-0.8, 2.6]	[-0.9, 2.2]	[-1.3, 1.4]	[-1.6, 1.3]
%Δ (95% CI – EHW)	[1.0, 2.4]	[0.3, 1.6]	[0.4, 1.8]	[0.2, 1.6]	[-0.2, 1.2]	[-0.6, 0.8]	[-0.2, 1.3]	[-0.4, 1.0]	[0.7, 2.2]	[0.4, 1.8]	[-0.3, 1.2]	[-0.5, 1.0]	[-0.1, 1.9]	[-0.3, 1.6]	[-0.9, 1.0]	[-1.1, 0.8]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table K.3.4. Dummy for Lifetime Cites from Researchers in a Poor/Developing Country (DDD)

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.233]				[0.233]				[0.234]				[0.235]		
Poisson																
NIH × Post April 2008	-0.104	-0.013	-0.095	-0.067	0.021	0.098	-0.029	0.007	-0.109	-0.028	-0.053	-0.012	0.000	0.040	0.026	0.050
NIH × Post April 2008 × TA	0.082	0.016	0.089	0.069	-0.018	-0.082	0.033	0.005	0.082	0.028	0.034	0.012	0.014	-0.003	-0.005	-0.013
SE (Clustered)	(0.0451)*	(0.0455)	(0.0443)**	(0.0439)	(0.0608)	(0.0670)	(0.0436)	(0.0429)	(0.0457)*	(0.0460)	(0.0418)	(0.0425)	(0.0499)	(0.0509)	(0.0504)	(0.0515)
SE (EHW)	(0.0365)**	(0.0367)	(0.0422)**	(0.0422)	(0.0372)	(0.0375)**	(0.0432)	(0.0432)	(0.0391)**	(0.0392)	(0.0451)	(0.0452)	(0.0478)	(0.0468)	(0.0559)	(0.0560)
%Δ	8.5	1.7	9.3	7.2	-1.7	-7.9	3.3	0.5	8.5	2.9	3.4	1.2	1.4	-0.3	-0.5	-1.3
%Δ (95% CI – Clustered)	[-0.7, 18.5]	[-7.0, 11.1]	[0.2, 19.3]	[-1.7, 16.8]	[-12.8, 10.7]	[-19.2, 5.1]	[-5.1, 12.6]	[-7.6, 9.3]	[-0.8, 18.7]	[-6.0, 12.6]	[-4.7, 12.3]	[-6.9, 10.0]	[-8.1, 11.8]	[-9.8, 10.1]	[-9.9, 9.8]	[-10.7, 9.2]
%Δ (95% CI – EHW)	[1.0, 16.6]	[-5.4, 9.2]	[0.7, 18.8]	[-1.3, 16.4]	[-8.7, 5.7]	[-14.4, -0.8]	[-5.0, 12.5]	[-7.7, 9.3]	[0.5, 17.1]	[-4.7, 11.1]	[-5.3, 13.0]	[-7.4, 10.5]	[-7.7, 11.3]	[-9.0, 9.3]	[-10.9, 11.0]	[-11.5, 10.2]
Observations	2,103,480		1,985,494		1,707,823		1,650,425		1,203,393		1,136,891		451,968		426,040	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.044	-0.032	-0.040	-0.037	-0.011	0.001	-0.017	-0.012	-0.038	-0.027	-0.025	-0.019	-0.003	0.006	0.005	0.010
NIH × Post April 2008 × TA	0.019	0.009	0.018	0.015	-0.002	-0.013	0.005	0.001	0.020	0.011	0.009	0.004	0.003	-0.003	-0.003	-0.006
SE (Clustered)	(0.0122)	(0.0123)	(0.0120)	(0.0119)	(0.0138)	(0.0149)	(0.0119)	(0.0117)	(0.0121)	(0.0126)	(0.0113)	(0.0117)	(0.0134)	(0.0138)	(0.0134)	(0.0138)
SE (EHW)	(0.0088)**	(0.0085)	(0.0085)**	(0.0084)*	(0.0091)	(0.0088)	(0.0088)	(0.0086)	(0.0094)**	(0.0091)	(0.0091)	(0.0089)	(0.0121)	(0.0117)	(0.0118)	(0.0115)
%Δ	8.2	4.0	7.7	6.3	-0.9	-5.6	2.1	0.4	8.5	4.7	3.7	1.9	1.3	-1.3	-1.2	-2.6
%Δ (95% CI – Clustered)	[-2.1, 18.5]	[-6.4, 14.4]	[-2.4, 17.8]	[-3.7, 16.3]	[-12.6, 10.7]	[-18.1, 6.9]	[-7.9, 12.2]	[-9.4, 10.3]	[-1.7, 18.6]	[-5.8, 15.2]	[-5.8, 13.2]	[-8.0, 11.7]	[-9.9, 12.5]	[-12.8, 10.3]	[-12.4, 10.0]	[-14.1, 8.9]
%Δ (95% CI – EHW)	[0.9, 15.6]	[-3.2, 11.2]	[0.6, 14.9]	[-0.7, 13.4]	[-8.6, 6.7]	[-13.0, 1.8]	[-5.3, 9.5]	[-6.8, 7.7]	[0.6, 16.3]	[-2.9, 12.3]	[-3.9, 11.3]	[-5.6, 9.3]	[-8.8, 11.3]	[-11.0, 8.4]	[-11.1, 8.6]	[-12.2, 7.0]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Linear – IHS																
NIH × Post April 2008	-0.039	-0.028	-0.035	-0.033	-0.010	0.001	-0.015	-0.011	-0.034	-0.024	-0.022	-0.017	-0.002	0.006	0.004	0.009
NIH × Post April 2008 × TA	0.017	0.008	0.016	0.013	-0.002	-0.011	0.004	0.001	0.018	0.010	0.008	0.004	0.003	-0.003	-0.003	-0.005
SE (Clustered)	(0.0108)	(0.0109)	(0.0106)	(0.0105)	(0.0122)	(0.0131)	(0.0105)	(0.0103)	(0.0107)	(0.0111)	(0.0100)	(0.0103)	(0.0118)	(0.0122)	(0.0118)	(0.0121)
SE (EHW)	(0.0077)**	(0.0075)	(0.0075)**	(0.0074)*	(0.0080)	(0.0078)	(0.0078)	(0.0076)	(0.0083)**	(0.0080)	(0.0080)	(0.0079)	(0.0107)	(0.0103)	(0.0104)	(0.0102)
%Δ	1.7	0.8	1.6	1.3	-0.2	-1.1	0.4	0.1	1.8	1.0	0.8	0.4	0.3	-0.3	-0.3	-0.5
%Δ (95% CI – Clustered)	[-0.4, 3.9]	[-1.3, 3.0]	[-0.5, 3.7]	[-0.7, 3.4]	[-2.6, 2.2]	[-3.6, 1.4]	[-1.6, 2.5]	[-1.9, 2.1]	[-0.3, 3.9]	[-1.2, 3.2]	[-1.2, 2.8]	[-1.6, 2.4]	[-2.0, 2.6]	[-2.6, 2.1]	[-2.5, 2.1]	[-2.9, 1.9]
%Δ (95% CI – EHW)	[0.2, 3.3]	[-0.6, 2.3]	[0.1, 3.1]	[-0.1, 2.8]	[-1.7, 1.4]	[-2.6, 0.4]	[-1.1, 2.0]	[-1.4, 1.6]	[0.1, 3.4]	[-0.6, 2.6]	[-0.8, 2.4]	[-1.2, 1.9]	[-1.8, 2.4]	[-2.3, 1.8]	[-2.3, 1.8]	[-2.5, 1.5]
Observations	2,103,480		2,103,449		1,707,823		1,707,818		1,203,393		1,203,300		451,968		451,662	
Panel B: Jan 2003 - Dec 2011		[0.309]				[0.309]				[0.311]				[0.313]		
Poisson																
NIH × Post April 2008	-0.197	-0.053	-0.149	-0.080	-0.039	0.039	-0.102	-0.029	-0.200	-0.082	-0.124	-0.043	-0.110	-0.047	-0.049	-0.001
NIH × Post April 2008 × TA	0.106	0.042	0.101	0.066	-0.009	-0.038	0.063	0.022	0.125	0.065	0.054	0.021	0.114	0.090	0.043	0.029
SE (Clustered)	(0.0646)*	(0.0530)	(0.0494)**	(0.0415)	(0.0710)	(0.0704)	(0.0515)	(0.0418)	(0.0613)**	(0.0460)	(0.0409)	(0.0344)	(0.0488)**	(0.0429)**	(0.0364)	(0.0381)
SE (EHW)	(0.0224)***	(0.0220)*	(0.0262)***	(0.0262)**	(0.0228)	(0.0224)*	(0.0266)**	(0.0267)	(0.0240)***	(0.0238)***	(0.0280)*	(0.0280)	(0.0291)***	(0.0287)***	(0.0343)	(0.0344)
%Δ	11.2	4.2	10.6	6.8	-0.9	-3.7	6.5	2.2	13.4	6.7	5.6	2.2	12.1	9.4	4.4	3.0
%Δ (95% CI – Clustered)	[-2.0, 26.3]	[-6.0, 15.7]	[0.4, 21.8]	[-1.5, 15.9]	[-13.8, 13.9]	[-16.1, 10.5]	[-3.7, 17.8]	[-5.8, 11.0]	[0.5, 27.8]	[-2.5, 16.7]	[-2.5, 14.4]	[-4.5, 9.3]	[1.9, 23.3]	[0.6, 19.0]	[-2.8, 12.1]	[-4.4, 11.0]
%Δ (95% CI – EHW)	[6.5, 16.2]	[-0.2, 8.8]	[5.1, 16.4]	[1.5, 12.4]	[-5.2, 3.7]	[-7.9, 0.6]	[1.1, 12.2]	[-3.0, 7.7]	[8.1, 18.8]	[1.8, 11.7]	[-0.0, 11.6]	[-3.3, 7.9]	[5.9, 18.6]	[3.4, 15.7]	[-2.4, 11.7]	[-3.7, 10.2]
Observations	6,108,951		5,861,840		4,918,431		4,789,973		3,067,679		2,947,474		1,288,882		1,238,496	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.094	-0.069	-0.072	-0.060	-0.041	-0.028	-0.041	-0.029	-0.071	-0.049	-0.048	-0.032	-0.027	-0.012	-0.010	-0.000
NIH × Post April 2008 × TA	0.027	0.013	0.016	0.007	-0.000	-0.005	0.005	-0.003	0.031	0.020	0.012	0.005	0.026	0.017	0.009	0.004
SE (Clustered)	(0.0155)*	(0.0136)	(0.0141)	(0.0125)	(0.0166)	(0.0155)	(0.0149)	(0.0128)	(0.0152)**	(0.0131)	(0.0125)	(0.0114)	(0.0140)*	(0.0133)	(0.0118)	(0.0124)
SE (EHW)	(0.0054)***	(0.0052)**	(0.0053)***	(0.0052)	(0.0056)	(0.0054)	(0.0055)	(0.0054)	(0.0058)***	(0.0056)***	(0.0057)**	(0.0056)	(0.0074)***	(0.0072)**	(0.0073)	(0.0072)
%Δ	8.6	4.3	5.3	2.4	-0.0	-1.6	1.8	-0.8	10.0	6.5	3.9	1.7	8.2	5.5	2.8	1.4
%Δ (95% CI – Clustered)	[-1.2, 18.5]	[-4.4, 12.9]	[-3.7, 14.2]	[-5.5, 10.3]	[-10.5, 10.5]	[-11.4, 8.2]	[-7.7, 11.2]	[-8.9, 7.3]	[0.3, 19.6]	[-1.7, 14.8]	[-3.9, 11.8]	[-5.5, 9.0]	[-0.6, 17.0]	[-2.8, 13.8]	[-4.6, 10.2]	[-6.4, 9.2]
%Δ (95% CI – EHW)	[5.2, 12.1]	[0.9, 7.6]	[1.9, 8.6]	[-0.9, 5.7]	[-3.6, 3.5]	[-5.0, 1.9]	[-1.7, 5.2]	[-4.2, 2.6]	[6.3, 13.6]	[3.0, 10.1]	[0.4, 7.5]	[-1.8, 5.3]	[3.5, 12.8]	[1.0, 10.0]	[-1.8, 7.4]	[-3.1, 5.9]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Linear – IHS																
NIH × Post April 2008	-0.083	-0.061	-0.064	-0.053	-0.036	-0.025	-0.036	-0.026	-0.063	-0.043	-0.042	-0.029	-0.024	-0.011	-0.009	-0.000
NIH × Post April 2008 × TA	0.024	0.012	0.014	0.007	-0.000	-0.004	0.005	-0.002	0.027	0.018	0.011	0.005	0.022	0.015	0.008	0.004
SE (Clustered)	(0.0137)*	(0.0120)	(0.0124)	(0.0110)	(0.0146)	(0.0136)	(0.0131)	(0.0112)	(0.0134)**	(0.0115)	(0.0110)	(0.0101)	(0.0124)*	(0.0117)	(0.0104)	(0.0109)
SE (EHW)	(0.0047)***	(0.0046)**	(0.0047)***	(0.0046)	(0.0049)	(0.0048)	(0.0048)	(0.0047)	(0.0051)***	(0.0049)***	(0.0050)**	(0.0049)	(0.0066)***	(0.0063)**	(0.0065)	(0.0063)
%Δ	2.4	1.2	1.4	0.7	-0.0	-0.4	0.5	-0.2	2.8	1.8	1.1	0.5	2.3	1.5	0.8	0.4
%Δ (95% CI – Clustered)	[-0.3, 5.2]	[-1.2, 3.6]	[-1.0, 3.9]	[-1.5, 2.9]	[-2.8, 2.9]	[-3.1, 2.3]	[-2.1, 3.1]	[-2.4, 2.0]	[0.1, 5.5]	[-0.5, 4.1]	[-1.1, 3.3]	[-1.5, 2.5]	[-0.2, 4.8]	[-0.8, 3.9]	[-1.3, 2.9]	[-1.7, 2.6]
%Δ (95% CI – EHW)	[1.4, 3.3]	[0.3, 2.1]	[0.5, 2.4]	[-0.2, 1.6]	[-1.0, 1.0]	[-1.4, 0.5]	[-0.5, 1.4]	[-1.1, 0.7]	[1.7, 3.8]	[0.8, 2.8]	[0.1, 2.1]	[-0.5, 1.4]	[1.0, 3.6]	[0.3, 2.8]	[-0.5, 2.1]	[-0.8, 1.6]
Observations	6,108,951		6,108,849		4,918,431		4,918,411		3,067,679		3,067,514		1,288,882		1,288,517	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the triple differences (DDD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations from researchers in a poor/developing country. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (2) in the appendix. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

L Results for Citation Outcomes Only Using Articles Not Subject to Other Open Access Mandates

Table L.1.1. Count of 2-Year Cites (DiD) using Articles not Subject to Any Other Open Access Mandate

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009	[7.922]				[7.922]				[7.957]				[7.972]			
Poisson																
NIH × Post April 2008	0.001	-0.010	-0.020	-0.022	0.021	-0.003	-0.016	-0.019	-0.033	-0.025	-0.039	-0.030	-0.019	-0.019	-0.025	-0.022
SE (Clustered)	(0.0124)	(0.0109)	(0.0090)**	(0.0088)**	(0.0133)	(0.0111)	(0.0090)*	(0.0087)**	(0.0115)***	(0.0121)**	(0.0088)***	(0.0087)***	(0.0135)	(0.0137)	(0.0110)**	(0.0104)**
SE (EHW)	(0.0093)	(0.0094)	(0.0017)***	(0.0017)***	(0.0095)**	(0.0096)	(0.0017)***	(0.0017)***	(0.0092)***	(0.0091)***	(0.0018)***	(0.0018)***	(0.0131)	(0.0131)	(0.0024)***	(0.0024)***
%Δ	0.1	-1.0	-2.0	-2.2	2.2	-0.3	-1.6	-1.9	-3.2	-2.4	-3.8	-3.0	-1.9	-1.9	-2.5	-2.1
%Δ (95% CI – Clustered)	[-2.3, 2.6]	[-3.1, 1.2]	[-3.7, -0.2]	[-3.9, -0.5]	[-0.5, 4.9]	[-2.5, 1.9]	[-3.3, 0.2]	[-3.6, -0.2]	[-5.4, -1.0]	[-4.7, -0.1]	[-5.4, -2.1]	[-4.6, -1.3]	[-4.5, 0.7]	[-4.5, 0.8]	[-4.6, -0.4]	[-4.1, -0.1]
%Δ (95% CI – EHW)	[-1.7, 1.9]	[-2.8, 0.9]	[-2.3, -1.7]	[-2.5, -1.9]	[0.3, 4.1]	[-2.2, 1.6]	[-1.9, -1.2]	[-2.2, -1.6]	[-5.0, -1.5]	[-4.2, -0.7]	[-4.1, -3.4]	[-3.3, -2.6]	[-4.4, 0.7]	[-4.4, 0.7]	[-3.0, -2.0]	[-2.6, -1.7]
Observations	2,076,056		2,023,553		1,681,001		1,652,336		1,184,020		1,150,611		436,386		423,836	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.085	-0.016	0.039	-0.039	0.146	-0.003	0.020	-0.058	-0.052	-0.139	-0.071	-0.111	-0.090	-0.184	-0.118	-0.153
SE (Clustered)	(0.0736)	(0.0648)	(0.0567)	(0.0536)	(0.0768)*	(0.0657)	(0.0571)	(0.0543)	(0.0749)	(0.0659)**	(0.0569)	(0.0532)**	(0.0916)	(0.0837)**	(0.0747)	(0.0736)**
SE (EHW)	(0.0611)	(0.0582)	(0.0551)	(0.0527)	(0.0624)**	(0.0595)	(0.0561)	(0.0536)	(0.0634)	(0.0594)**	(0.0563)	(0.0535)**	(0.0861)	(0.0815)**	(0.0774)	(0.0744)**
%Δ	1.1	-0.2	0.5	-0.5	1.8	-0.0	0.3	-0.7	-0.7	-1.7	-0.9	-1.4	-1.1	-2.3	-1.5	-1.9
%Δ (95% CI – Clustered)	[-0.7, 2.9]	[-1.8, 1.4]	[-0.9, 1.9]	[-1.8, 0.8]	[-0.1, 3.7]	[-1.7, 1.6]	[-1.2, 1.7]	[-2.1, 0.6]	[-2.5, 1.2]	[-3.4, -0.1]	[-2.3, 0.5]	[-2.7, -0.1]	[-3.4, 1.1]	[-4.4, -0.2]	[-3.3, 0.4]	[-3.7, -0.1]
%Δ (95% CI – EHW)	[-0.4, 2.6]	[-1.6, 1.2]	[-0.9, 1.9]	[-1.8, 0.8]	[0.3, 3.4]	[-1.5, 1.4]	[-1.1, 1.6]	[-2.1, 0.6]	[-2.2, 0.9]	[-3.2, -0.3]	[-2.3, 0.5]	[-2.7, -0.1]	[-3.2, 1.0]	[-4.3, -0.3]	[-3.4, 0.4]	[-3.8, -0.1]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Linear – IHS																
NIH × Post April 2008	-0.015	-0.016	-0.012	-0.018	0.006	-0.010	-0.011	-0.018	-0.039	-0.037	-0.029	-0.029	-0.013	-0.018	-0.007	-0.010
SE (Clustered)	(0.0089)*	(0.0066)**	(0.0056)**	(0.0048)***	(0.0107)	(0.0069)	(0.0058)**	(0.0050)***	(0.0080)***	(0.0063)***	(0.0055)***	(0.0047)***	(0.0090)	(0.0072)**	(0.0063)	(0.0056)*
SE (EHW)	(0.0051)***	(0.0045)***	(0.0042)***	(0.0038)***	(0.0052)	(0.0046)**	(0.0043)***	(0.0039)***	(0.0055)***	(0.0048)***	(0.0044)***	(0.0040)***	(0.0073)*	(0.0063)***	(0.0058)	(0.0053)*
%Δ	-1.5	-1.6	-1.2	-1.8	0.6	-1.0	-1.1	-1.8	-3.9	-3.6	-2.8	-2.8	-1.3	-1.8	-0.7	-1.0
%Δ (95% CI – Clustered)	[-3.2, 0.3]	[-2.9, -0.3]	[-2.2, -0.1]	[-2.7, -0.9]	[-1.5, 2.7]	[-2.3, 0.4]	[-2.2, -0.0]	[-2.7, -0.8]	[-5.4, -2.3]	[-4.8, -2.4]	[-3.9, -1.8]	[-3.7, -1.9]	[-3.0, 0.4]	[-3.2, -0.4]	[-1.9, 0.5]	[-2.1, 0.1]
%Δ (95% CI – EHW)	[-2.4, -0.5]	[-2.5, -0.7]	[-2.0, -0.3]	[-2.5, -1.1]	[-0.4, 1.6]	[-1.9, -0.1]	[-2.0, -0.3]	[-2.5, -1.0]	[-4.9, -2.8]	[-4.5, -2.7]	[-3.7, -2.0]	[-3.6, -2.1]	[-2.7, 0.1]	[-3.0, -0.6]	[-1.8, 0.5]	[-2.0, 0.1]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Panel B: Jan 2003 - Dec 2011	[7.763]				[7.763]				[7.783]				[7.807]			
Poisson																
NIH × Post April 2008	0.010	0.006	-0.040	-0.054	0.051	0.012	-0.029	-0.046	-0.017	-0.023	-0.071	-0.061	0.054	0.024	-0.007	-0.018
SE (Clustered)	(0.0240)	(0.0196)	(0.0131)***	(0.0087)***	(0.0235)**	(0.0198)	(0.0132)**	(0.0087)***	(0.0233)	(0.0202)	(0.0104)***	(0.0079)***	(0.0238)**	(0.0208)	(0.0088)	(0.0079)**
SE (EHW)	(0.0051)*	(0.0060)	(0.0010)***	(0.0010)***	(0.0051)***	(0.0058)**	(0.0010)***	(0.0010)***	(0.0055)***	(0.0060)***	(0.0011)***	(0.0011)***	(0.0075)***	(0.0081)***	(0.0014)***	(0.0014)***
%Δ	1.0	0.6	-4.0	-5.3	5.3	1.2	-2.9	-4.5	-1.7	-2.3	-6.9	-5.9	5.5	2.5	-0.7	-1.7
%Δ (95% CI – Clustered)	[-3.7, 5.8]	[-3.2, 4.6]	[-6.4, -1.5]	[-6.9, -3.6]	[0.5, 10.2]	[-2.7, 5.2]	[-5.4, -0.3]	[-6.2, -2.9]	[-6.1, 2.9]	[-6.1, 1.6]	[-8.8, -5.0]	[-7.3, -4.4]	[0.7, 10.6]	[-1.6, 6.7]	[-2.5, 1.0]	[-3.3, -0.2]
%Δ (95% CI – EHW)	[-0.0, 2.0]	[-0.5, 1.8]	[-4.2, -3.8]	[-5.5, -5.1]	[4.2, 6.3]	[0.0, 2.3]	[-3.1, -2.7]	[-4.7, -4.3]	[-2.8, -0.7]	[-3.5, -1.2]	[-7.1, -6.7]	[-6.1, -5.7]	[4.0, 7.1]	[0.8, 4.1]	[-1.0, -0.5]	[-2.0, -1.5]
Observations	6,046,562		5,946,678		4,857,364		4,803,023		3,024,951		2,970,177		1,250,258		1,227,077	
Coverged (50 Iterations)	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.057	-0.123	0.002	-0.125	0.202	-0.066	-0.021	-0.150	-0.033	-0.180	-0.221	-0.234	0.297	-0.003	-0.019	-0.124
SE (Clustered)	(0.1415)	(0.1098)	(0.0949)	(0.0730)*	(0.1443)	(0.1104)	(0.0949)	(0.0725)**	(0.1473)	(0.1108)	(0.0742)***	(0.0607)***	(0.1642)*	(0.1261)	(0.0611)	(0.0585)**
SE (EHW)	(0.0354)	(0.0344)***	(0.0323)	(0.0314)***	(0.0358)***	(0.0348)*	(0.0327)	(0.0317)***	(0.0375)	(0.0353)***	(0.0334)***	(0.0319)***	(0.0496)***	(0.0472)	(0.0447)	(0.0433)***
%Δ	0.7	-1.6	0.0	-1.6	2.6	-0.8	-0.3	-1.9	-0.4	-2.3	-2.8	-3.0	3.8	-0.0	-0.2	-1.6
%Δ (95% CI – Clustered)	[-2.8, 4.3]	[-4.4, 1.2]	[-2.4, 2.4]	[-3.5, 0.2]	[-1.0, 6.2]	[-3.6, 1.9]	[-2.7, 2.1]	[-3.8, -0.1]	[-4.1, 3.3]	[-5.1, 0.5]	[-4.7, -1.0]	[-4.5, -1.5]	[-0.3, 7.9]	[-3.2, 3.1]	[-1.8, 1.3]	[-3.1, -0.1]
%Δ (95% CI – EHW)	[-0.2, 1.6]	[-2.5, -0.7]	[-0.8, 0.8]	[-2.4, -0.8]	[1.7, 3.5]	[-1.7, 0.0]	[-1.1, 0.6]	[-2.7, -1.1]	[-1.4, 0.5]	[-3.2, -1.4]	[-3.7, -2.0]	[-3.8, -2.2]	[2.6, 5.1]	[-1.2, 1.1]	[-1.4, 0.9]	[-2.7, -0.5]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Linear – IHS																
NIH × Post April 2008	-0.074	-0.065	-0.055	-0.061	-0.029	-0.048	-0.051	-0.059	-0.095	-0.077	-0.090	-0.078	-0.002	-0.026	-0.025	-0.034
SE (Clustered)	(0.0137)***	(0.0092)***	(0.0075)***	(0.0057)***	(0.0144)**	(0.0093)***	(0.0078)***	(0.0058)***	(0.0125)***	(0.0085)***	(0.0060)***	(0.0048)***	(0.0124)	(0.0083)***	(0.0055)***	(0.0047)***
SE (EHW)	(0.0030)***	(0.0027)***	(0.0025)***	(0.0023)***	(0.0030)***	(0.0027)***	(0.0025)***	(0.0023)***	(0.0033)***	(0.0029)***	(0.0026)***	(0.0024)***	(0.0042)	(0.0037)***	(0.0034)***	(0.0031)***
%Δ	-7.1	-6.3	-5.3	-5.9	-2.9	-4.7	-5.0	-5.7	-9.0	-7.4	-8.6	-7.5	-0.2	-2.5	-2.5	-3.3
%Δ (95% CI – Clustered)	[-9.6, -4.6]	[-8.0, -4.6]	[-6.7, -3.9]	[-7.0, -4.9]	[-5.6, -0.1]	[-6.4, -2.9]	[-6.4, -3.6]	[-6.8, -4.7]	[-11.2, -6.8]	[-8.9, -5.9]	[-9.7, -7.5]	[-8.3, -6.6]	[-2.6, 2.3]	[-4.1, -0.9]	[-3.5, -1.4]	[-4.2, -2.4]
%Δ (95% CI – EHW)	[-7.7, -6.6]	[-6.8, -5.8]	[-5.8, -4.9]	[-6.4, -5.5]	[-3.5, -2.3]	[-5.2, -4.2]	[-5.5, -4.5]	[-6.2, -5.3]	[-9.6, -8.5]	[-7.9, -6.9]	[-9.1, -8.1]	[-7.9, -7.0]	[-1.0, 0.6]	[-3.2, -1.8]	[-3.1, -1.8]	[-3.9, -2.7]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table L.1.2. Count of Lifetime Cites (DiD) using Articles not Subject to Any Other Open Access Mandate

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[30.836]				[30.836]				[30.970]				[31.040]		
Poisson																
NIH × Post April 2008	0.021	0.013	-0.001	-0.003	0.040	0.018	0.001	-0.002	-0.012	-0.004	-0.022	-0.013	-0.013	-0.012	-0.021	-0.017
SE (Clustered)	(0.0130)	(0.0114)	(0.0095)	(0.0093)	(0.0140)***	(0.0116)	(0.0095)	(0.0092)	(0.0125)	(0.0124)	(0.0097)**	(0.0093)	(0.0142)	(0.0142)	(0.0119)*	(0.0113)
SE (EHW)	(0.0099)**	(0.0099)	(0.0099)	(0.0099)***	(0.0100)***	(0.0101)*	(0.0099)	(0.0099)*	(0.0102)	(0.0100)	(0.0010)***	(0.0010)***	(0.0135)	(0.0135)	(0.0013)***	(0.0013)***
%Δ	2.1	1.3	-0.1	-0.3	4.0	1.8	0.1	-0.2	-1.2	-0.4	-2.2	-1.3	-1.3	-1.2	-2.1	-1.7
%Δ (95% CI – Clustered)	[-0.4, 4.7]	[-1.0, 3.6]	[-1.9, 1.8]	[-2.1, 1.5]	[1.2, 6.9]	[-0.5, 4.1]	[-1.7, 2.0]	[-1.9, 1.7]	[-3.6, 1.2]	[-2.8, 2.1]	[-4.1, -0.3]	[-3.1, 0.5]	[-4.0, 1.5]	[-3.9, 1.6]	[-4.4, 0.2]	[-3.8, 0.5]
%Δ (95% CI – EHW)	[0.2, 4.1]	[-0.7, 3.3]	[-0.3, 0.1]	[-0.5, -0.1]	[2.0, 6.1]	[-0.2, 3.8]	[-0.1, 0.3]	[-0.3, 0.0]	[-3.2, 0.7]	[-2.3, 1.6]	[-2.4, -2.0]	[-1.5, -1.1]	[-3.9, 1.4]	[-3.8, 1.5]	[-2.4, -1.9]	[-1.9, -1.4]
Observations	2,076,056		2,042,086		1,681,001		1,662,737		1,184,020		1,161,433		436,386		426,340	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-4.686	-4.945	-4.802	-4.993	-3.840	-4.256	-4.133	-4.326	-4.199	-4.397	-4.246	-4.308	-2.531	-2.761	-2.618	-2.662
SE (Clustered)	(0.4233)***	(0.4294)***	(0.4248)***	(0.4345)***	(0.4202)***	(0.4210)***	(0.4200)***	(0.4274)***	(0.4192)***	(0.4192)***	(0.4156)***	(0.4082)***	(0.4260)***	(0.4181)***	(0.4359)***	(0.4156)***
SE (EHW)	(0.2552)***	(0.2469)***	(0.2394)***	(0.2320)***	(0.2582)***	(0.2497)***	(0.2417)***	(0.2339)***	(0.2647)***	(0.2536)***	(0.2460)***	(0.2376)***	(0.3312)***	(0.3165)***	(0.3121)***	(0.3021)***
%Δ	-15.2	-16.0	-15.6	-16.2	-12.5	-13.8	-13.4	-14.0	-13.6	-14.2	-13.7	-13.9	-8.2	-8.9	-8.4	-8.6
%Δ (95% CI – Clustered)	[-17.9, -12.5]	[-18.8, -13.3]	[-18.3, -12.9]	[-19.0, -13.4]	[-15.1, -9.8]	[-16.5, -11.1]	[-16.1, -10.7]	[-16.7, -11.3]	[-16.2, -10.9]	[-16.9, -11.5]	[-16.3, -11.1]	[-16.5, -11.3]	[-10.8, -5.5]	[-11.5, -6.3]	[-11.2, -5.7]	[-11.2, -6.0]
%Δ (95% CI – EHW)	[-16.8, -13.6]	[-17.6, -14.5]	[-17.1, -14.1]	[-17.7, -14.7]	[-14.1, -10.8]	[-15.4, -12.2]	[-14.9, -11.9]	[-15.5, -12.5]	[-15.2, -11.9]	[-15.8, -12.6]	[-15.3, -12.2]	[-15.4, -12.4]	[-10.2, -6.1]	[-10.9, -6.9]	[-10.4, -6.5]	[-10.5, -6.7]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Linear – IHS																
NIH × Post April 2008	-0.060	-0.053	-0.052	-0.059	0.001	-0.015	-0.021	-0.027	-0.069	-0.058	-0.055	-0.052	-0.022	-0.024	-0.015	-0.017
SE (Clustered)	(0.0121)***	(0.0082)***	(0.0067)***	(0.0058)***	(0.0154)	(0.0088)*	(0.0069)***	(0.0057)***	(0.0097)***	(0.0073)***	(0.0064)***	(0.0054)***	(0.0104)**	(0.0080)***	(0.0069)**	(0.0060)***
SE (EHW)	(0.0059)***	(0.0051)***	(0.0046)***	(0.0040)***	(0.0059)	(0.0051)***	(0.0047)***	(0.0041)***	(0.0063)***	(0.0053)***	(0.0048)***	(0.0042)***	(0.0083)***	(0.0069)***	(0.0062)**	(0.0056)***
%Δ	-5.8	-5.2	-5.0	-5.7	0.1	-1.5	-2.1	-2.7	-6.7	-5.6	-5.3	-5.0	-2.2	-2.3	-1.5	-1.7
%Δ (95% CI – Clustered)	[-8.0, -3.5]	[-6.7, -3.7]	[-6.3, -3.8]	[-6.7, -4.6]	[-2.9, 3.2]	[-3.2, 0.2]	[-3.4, -0.7]	[-3.8, -1.6]	[-8.5, -4.9]	[-6.9, -4.2]	[-6.5, -4.1]	[-6.0, -4.0]	[-4.2, -0.2]	[-3.9, -0.8]	[-2.8, -0.1]	[-2.8, -0.5]
%Δ (95% CI – EHW)	[-6.9, -4.7]	[-6.1, -4.2]	[-5.9, -4.2]	[-6.4, -4.9]	[-1.0, 1.3]	[-2.5, -0.5]	[-3.0, -1.1]	[-3.5, -1.9]	[-7.8, -5.5]	[-6.6, -4.6]	[-6.2, -4.4]	[-5.8, -4.3]	[-3.8, -0.6]	[-3.7, -1.0]	[-2.7, -0.3]	[-2.8, -0.6]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Panel B: Jan 2003 - Dec 2011		[37.729]				[37.729]				[37.812]				[37.930]		
Poisson																
NIH × Post April 2008	0.058	0.045	0.001	-0.010	0.095	0.057	0.008	-0.007	0.039	0.020	-0.032	-0.030	0.056	0.026	-0.008	-0.018
SE (Clustered)	(0.0243)**	(0.0206)**	(0.0141)	(0.0089)	(0.0242)***	(0.0207)***	(0.0142)	(0.0089)	(0.0247)	(0.0214)	(0.0123)***	(0.0081)***	(0.0251)**	(0.0224)	(0.0096)	(0.0085)**
SE (EHW)	(0.0053)***	(0.0058)***	(0.0006)*	(0.0006)***	(0.0054)***	(0.0058)***	(0.0006)***	(0.0006)***	(0.0058)***	(0.0065)***	(0.0006)***	(0.0006)***	(0.0077)***	(0.0084)***	(0.0008)***	(0.0008)***
%Δ	5.9	4.6	0.1	-1.0	10.0	5.9	0.8	-0.7	4.0	2.0	-3.2	-2.9	5.8	2.6	-0.8	-1.8
%Δ (95% CI – Clustered)	[1.0, 11.1]	[0.4, 8.9]	[-2.6, 2.9]	[-2.7, 0.8]	[4.9, 15.3]	[1.7, 10.3]	[-2.0, 3.6]	[-2.4, 1.1]	[-0.9, 9.2]	[-2.2, 6.4]	[-5.5, -0.8]	[-4.4, -1.4]	[0.7, 11.1]	[-1.8, 7.2]	[-2.7, 1.1]	[-3.4, -0.2]
%Δ (95% CI – EHW)	[4.8, 7.0]	[3.4, 5.7]	[-0.0, 0.2]	[-1.1, -0.8]	[8.8, 11.1]	[4.7, 7.1]	[0.6, 0.9]	[-0.8, -0.6]	[2.8, 5.2]	[0.7, 3.3]	[-3.3, -3.1]	[-3.0, -2.8]	[4.2, 7.4]	[0.9, 4.3]	[-1.0, -0.7]	[-2.0, -1.6]
Observations	6,046,562		5,989,592		4,857,364		4,828,157		3,024,951		2,992,177		1,250,258		1,233,457	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-12.300	-12.488	-11.996	-12.048	-10.011	-10.589	-10.342	-10.452	-9.122	-9.237	-9.425	-9.100	-4.498	-5.271	-5.288	-5.383
SE (Clustered)	(0.8404)***	(0.8325)***	(0.8372)***	(0.8272)***	(0.8042)***	(0.7934)***	(0.8096)***	(0.8001)***	(0.7431)***	(0.7257)***	(0.7360)***	(0.6903)***	(0.7104)***	(0.6838)***	(0.6217)***	(0.5879)***
SE (EHW)	(0.1383)***	(0.1349)***	(0.1310)***	(0.1271)***	(0.1398)***	(0.1360)***	(0.1323)***	(0.1281)***	(0.1462)***	(0.1404)***	(0.1360)***	(0.1314)***	(0.1845)***	(0.1767)***	(0.1715)***	(0.1664)***
%Δ	-32.6	-33.1	-31.8	-31.9	-26.5	-28.1	-27.4	-27.7	-24.1	-24.4	-24.9	-24.1	-11.9	-13.9	-13.9	-14.2
%Δ (95% CI – Clustered)	[-37.0, -28.2]	[-37.4, -28.8]	[-36.1, -27.4]	[-36.2, -27.6]	[-30.7, -22.4]	[-32.2, -23.9]	[-31.6, -23.2]	[-31.9, -23.5]	[-28.0, -20.3]	[-28.2, -20.7]	[-28.7, -21.1]	[-27.6, -20.5]	[-15.5, -8.2]	[-17.4, -10.4]	[-17.2, -10.7]	[-17.2, -11.2]
%Δ (95% CI – EHW)	[-33.3, -31.9]	[-33.8, -32.4]	[-32.5, -31.1]	[-32.6, -31.3]	[-27.3, -25.8]	[-28.8, -27.4]	[-28.1, -26.7]	[-28.4, -27.0]	[-24.9, -23.4]	[-25.2, -23.7]	[-25.6, -24.2]	[-24.7, -23.4]	[-12.8, -10.9]	[-14.8, -13.0]	[-14.8, -13.1]	[-15.1, -13.3]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Linear – IHS																
NIH × Post April 2008	-0.230	-0.188	-0.178	-0.177	-0.089	-0.095	-0.101	-0.104	-0.182	-0.136	-0.157	-0.133	-0.028	-0.046	-0.045	-0.052
SE (Clustered)	(0.0185)***	(0.0118)***	(0.0107)***	(0.0089)***	(0.0191)***	(0.0114)***	(0.0108)***	(0.0085)***	(0.0158)***	(0.0100)***	(0.0086)***	(0.0067)***	(0.0144)*	(0.0093)***	(0.0070)***	(0.0057)***
SE (EHW)	(0.0034)***	(0.0030)***	(0.0027)***	(0.0024)***	(0.0034)***	(0.0030)***	(0.0028)***	(0.0025)***	(0.0037)***	(0.0032)***	(0.0029)***	(0.0026)***	(0.0048)***	(0.0040)***	(0.0037)***	(0.0033)***
%Δ	-20.5	-17.1	-16.3	-16.2	-8.5	-9.1	-9.6	-9.8	-16.7	-12.7	-14.5	-12.4	-2.8	-4.5	-4.4	-5.1
%Δ (95% CI – Clustered)	[-23.4, -17.6]	[-19.0, -15.2]	[-18.0, -14.5]	[-17.7, -14.7]	[-11.9, -5.0]	[-11.1, -7.0]	[-11.5, -7.7]	[-11.3, -8.3]	[-19.2, -14.0]	[-14.4, -10.9]	[-15.9, -13.1]	[-13.6, -11.3]	[-5.5, 0.0]	[-6.2, -2.8]	[-5.7, -3.1]	[-6.2, -4.0]
%Δ (95% CI – EHW)	[-21.1, -20.0]	[-17.6, -16.6]	[-16.7, -15.9]	[-16.6, -15.8]	[-9.1, -7.9]	[-9.6, -8.5]	[-10.1, -9.1]	[-10.3, -9.4]	[-17.3, -16.1]	[-13.2, -12.1]	[-15.0, -14.0]	[-12.9, -12.0]	[-3.7, -1.8]	[-5.3, -3.7]	[-5.1, -3.7]	[-5.7, -4.5]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on the count of lifetime citations – i.e. the number of citations an article ever receives. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table L.1.3. Dummy for Positive 2-Year Cites (DiD) using Articles not Subject to Any Other Open Access Mandate

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.875]				[0.875]				[0.875]				[0.876]		
Poisson																
NIH × Post April 2008	-0.016	-0.009	-0.014	-0.014	0.001	-0.002	-0.007	-0.008	-0.022	-0.015	-0.016	-0.014	-0.002	-0.001	0.000	-0.001
SE (Clustered)	(0.0046)***	(0.0034)***	(0.0025)***	(0.0025)***	(0.0054)	(0.0035)	(0.0024)***	(0.0023)***	(0.0033)***	(0.0027)***	(0.0022)***	(0.0021)***	(0.0033)	(0.0028)	(0.0023)	(0.0022)
SE (EHW)	(0.0020)***	(0.0020)***	(0.0048)***	(0.0048)***	(0.0019)	(0.0019)	(0.0048)	(0.0048)	(0.0021)***	(0.0020)***	(0.0051)***	(0.0051)***	(0.0027)	(0.0025)	(0.0068)	(0.0068)
%Δ	-1.6	-0.9	-1.4	-1.4	0.1	-0.2	-0.7	-0.8	-2.2	-1.5	-1.6	-1.4	-0.2	-0.1	0.0	-0.1
%Δ (95% CI – Clustered)	[-2.5, -0.7]	[-1.6, -0.2]	[-1.9, -0.9]	[-1.9, -1.0]	[-1.0, 1.2]	[-0.9, 0.5]	[-1.2, -0.3]	[-1.2, -0.3]	[-2.8, -1.6]	[-2.0, -0.9]	[-2.0, -1.2]	[-1.8, -1.0]	[-0.8, 0.4]	[-0.6, 0.5]	[-0.4, 0.5]	[-0.5, 0.4]
%Δ (95% CI – EHW)	[-2.0, -1.2]	[-1.3, -0.5]	[-2.4, -0.5]	[-2.4, -0.5]	[-0.3, 0.5]	[-0.6, 0.2]	[-1.7, 0.2]	[-1.7, 0.2]	[-2.6, -1.8]	[-1.9, -1.1]	[-2.6, -0.6]	[-2.4, -0.4]	[-0.7, 0.3]	[-0.6, 0.4]	[-1.3, 1.4]	[-1.4, 1.3]
Observations	2,076,056		2,023,553		1,681,001		1,652,336		1,184,020		1,150,611		436,386		423,836	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.011	-0.007	-0.008	-0.009	-0.000	-0.002	-0.005	-0.006	-0.016	-0.012	-0.011	-0.010	-0.002	-0.001	0.000	-0.001
SE (Clustered)	(0.0030)***	(0.0023)***	(0.0018)***	(0.0017)***	(0.0038)	(0.0025)	(0.0019)***	(0.0017)***	(0.0025)***	(0.0020)***	(0.0017)***	(0.0016)***	(0.0027)	(0.0023)	(0.0019)	(0.0019)
SE (EHW)	(0.0015)***	(0.0014)***	(0.0013)***	(0.0012)***	(0.0016)	(0.0015)	(0.0013)***	(0.0013)***	(0.0017)***	(0.0015)***	(0.0014)***	(0.0013)***	(0.0022)	(0.0020)	(0.0018)	(0.0018)
%Δ	-1.2	-0.8	-0.9	-1.0	-0.0	-0.3	-0.6	-0.7	-1.8	-1.3	-1.3	-1.2	-0.2	-0.2	0.0	-0.1
%Δ (95% CI – Clustered)	[-1.9, -0.5]	[-1.3, -0.3]	[-1.3, -0.5]	[-1.4, -0.7]	[-0.9, 0.8]	[-0.8, 0.3]	[-1.0, -0.2]	[-1.1, -0.3]	[-2.4, -1.3]	[-1.8, -0.9]	[-1.6, -0.9]	[-1.5, -0.8]	[-0.8, 0.4]	[-0.7, 0.3]	[-0.4, 0.5]	[-0.5, 0.3]
%Δ (95% CI – EHW)	[-1.6, -0.9]	[-1.1, -0.5]	[-1.2, -0.6]	[-1.3, -0.8]	[-0.4, 0.3]	[-0.6, 0.1]	[-0.9, -0.3]	[-1.0, -0.4]	[-2.2, -1.5]	[-1.7, -1.0]	[-1.6, -1.0]	[-1.5, -0.9]	[-0.7, 0.3]	[-0.6, 0.3]	[-0.4, 0.4]	[-0.5, 0.3]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Linear – IHS																
NIH × Post April 2008	-0.009	-0.006	-0.007	-0.008	-0.000	-0.002	-0.005	-0.005	-0.014	-0.010	-0.010	-0.009	-0.002	-0.001	0.000	-0.001
SE (Clustered)	(0.0027)***	(0.0020)***	(0.0016)***	(0.0015)***	(0.0034)	(0.0022)	(0.0016)***	(0.0015)***	(0.0022)***	(0.0018)***	(0.0015)***	(0.0014)***	(0.0024)	(0.0020)	(0.0017)	(0.0017)
SE (EHW)	(0.0014)***	(0.0013)***	(0.0011)***	(0.0011)***	(0.0014)	(0.0013)	(0.0012)***	(0.0011)***	(0.0015)***	(0.0014)***	(0.0012)***	(0.0012)***	(0.0020)	(0.0018)	(0.0016)	(0.0016)
%Δ	-0.9	-0.6	-0.7	-0.8	-0.0	-0.2	-0.5	-0.5	-1.4	-1.0	-1.0	-0.9	-0.2	-0.1	0.0	-0.1
%Δ (95% CI – Clustered)	[-1.4, -0.4]	[-1.0, -0.2]	[-1.0, -0.4]	[-1.1, -0.5]	[-0.7, 0.6]	[-0.6, 0.2]	[-0.8, -0.1]	[-0.8, -0.2]	[-1.8, -1.0]	[-1.4, -0.7]	[-1.3, -0.7]	[-1.2, -0.6]	[-0.6, 0.3]	[-0.5, 0.3]	[-0.3, 0.3]	[-0.4, 0.3]
%Δ (95% CI – EHW)	[-1.2, -0.7]	[-0.8, -0.3]	[-0.9, -0.5]	[-1.0, -0.6]	[-0.3, 0.3]	[-0.5, 0.0]	[-0.7, -0.2]	[-0.8, -0.3]	[-1.7, -1.1]	[-1.3, -0.8]	[-1.2, -0.7]	[-1.1, -0.7]	[-0.6, 0.2]	[-0.5, 0.2]	[-0.3, 0.3]	[-0.4, 0.2]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Panel B: Jan 2003 - Dec 2011		[0.879]				[0.879]				[0.879]				[0.880]		
Poisson																
NIH × Post April 2008	-0.052	-0.027	-0.041	-0.037	-0.015	-0.013	-0.025	-0.024	-0.047	-0.027	-0.040	-0.032	-0.005	-0.006	-0.008	-0.010
SE (Clustered)	(0.0069)***	(0.0040)***	(0.0032)***	(0.0027)***	(0.0065)**	(0.0040)***	(0.0032)***	(0.0025)***	(0.0049)***	(0.0029)***	(0.0024)***	(0.0019)***	(0.0037)	(0.0023)***	(0.0019)***	(0.0016)***
SE (EHW)	(0.0012)***	(0.0012)***	(0.0028)***	(0.0028)***	(0.0011)***	(0.0012)***	(0.0028)***	(0.0028)***	(0.0013)***	(0.0013)***	(0.0030)***	(0.0031)***	(0.0016)***	(0.0015)***	(0.0039)**	(0.0040)**
%Δ	-5.0	-2.7	-4.0	-3.7	-1.5	-1.3	-2.4	-2.3	-4.6	-2.7	-3.9	-3.1	-0.5	-0.6	-0.8	-1.0
%Δ (95% CI – Clustered)	[-6.3, -3.8]	[-3.4, -1.9]	[-4.6, -3.4]	[-4.2, -3.2]	[-2.8, -0.2]	[-2.1, -0.5]	[-3.0, -1.8]	[-2.8, -1.8]	[-5.5, -3.7]	[-3.2, -2.1]	[-4.3, -3.4]	[-3.5, -2.8]	[-1.2, 0.2]	[-1.0, -0.2]	[-1.2, -0.5]	[-1.3, -0.7]
%Δ (95% CI – EHW)	[-5.3, -4.8]	[-2.9, -2.4]	[-4.6, -3.5]	[-4.2, -3.1]	[-1.7, -1.3]	[-1.5, -1.1]	[-3.0, -1.9]	[-2.9, -1.8]	[-4.9, -4.4]	[-2.9, -2.4]	[-4.5, -3.3]	[-3.7, -2.6]	[-0.8, -0.2]	[-0.9, -0.3]	[-1.6, -0.1]	[-1.8, -0.2]
Observations	6,046,562		5,946,678		4,857,364		4,803,023		3,024,951		2,970,177		1,250,258		1,227,077	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	-0.035	-0.020	-0.024	-0.022	-0.013	-0.011	-0.017	-0.017	-0.036	-0.022	-0.028	-0.023	-0.006	-0.006	-0.007	-0.008
SE (Clustered)	(0.0042)***	(0.0026)***	(0.0022)***	(0.0017)***	(0.0046)***	(0.0027)***	(0.0023)***	(0.0018)***	(0.0035)***	(0.0021)***	(0.0018)***	(0.0015)***	(0.0030)*	(0.0018)***	(0.0015)***	(0.0014)***
SE (EHW)	(0.0009)***	(0.0009)***	(0.0008)***	(0.0007)***	(0.0009)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0010)***	(0.0009)***	(0.0008)***	(0.0008)***	(0.0013)***	(0.0012)***	(0.0011)***	(0.0010)***
%Δ	-4.0	-2.3	-2.7	-2.5	-1.5	-1.3	-2.0	-1.9	-4.1	-2.5	-3.2	-2.6	-0.6	-0.7	-0.8	-1.0
%Δ (95% CI – Clustered)	[-4.9, -3.0]	[-2.8, -1.7]	[-3.2, -2.2]	[-2.9, -2.2]	[-2.6, -0.5]	[-1.9, -0.7]	[-2.5, -1.4]	[-2.3, -1.5]	[-4.9, -3.4]	[-2.9, -2.0]	[-3.6, -2.8]	[-2.9, -2.3]	[-1.3, 0.0]	[-1.1, -0.3]	[-1.1, -0.4]	[-1.3, -0.6]
%Δ (95% CI – EHW)	[-4.2, -3.8]	[-2.5, -2.1]	[-2.8, -2.5]	[-2.7, -2.4]	[-1.7, -1.3]	[-1.5, -1.1]	[-2.1, -1.8]	[-2.1, -1.7]	[-4.4, -3.9]	[-2.7, -2.2]	[-3.4, -3.1]	[-2.8, -2.4]	[-0.9, -0.3]	[-1.0, -0.5]	[-1.0, -0.6]	[-1.2, -0.7]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Linear – IHS																
NIH × Post April 2008	-0.031	-0.018	-0.021	-0.020	-0.012	-0.010	-0.015	-0.015	-0.032	-0.019	-0.025	-0.020	-0.005	-0.006	-0.006	-0.007
SE (Clustered)	(0.0037)***	(0.0023)***	(0.0020)***	(0.0015)***	(0.0040)***	(0.0024)***	(0.0021)***	(0.0016)***	(0.0030)***	(0.0019)***	(0.0016)***	(0.0013)***	(0.0026)*	(0.0016)***	(0.0014)***	(0.0012)***
SE (EHW)	(0.0008)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0008)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0009)***	(0.0008)***	(0.0007)***	(0.0007)***	(0.0011)***	(0.0010)***	(0.0009)***	(0.0009)***
%Δ	-3.0	-1.7	-2.1	-1.9	-1.2	-1.0	-1.5	-1.5	-3.1	-1.9	-2.5	-2.0	-0.5	-0.6	-0.6	-0.7
%Δ (95% CI – Clustered)	[-3.7, -2.3]	[-2.2, -1.3]	[-2.4, -1.7]	[-2.2, -1.7]	[-2.0, -0.4]	[-1.5, -0.5]	[-1.9, -1.1]	[-1.8, -1.2]	[-3.7, -2.6]	[-2.2, -1.5]	[-2.8, -2.2]	[-2.3, -1.8]	[-1.0, 0.0]	[-0.9, -0.2]	[-0.9, -0.3]	[-1.0, -0.5]
%Δ (95% CI – EHW)	[-3.2, -2.9]	[-1.9, -1.6]	[-2.2, -1.9]	[-2.1, -1.8]	[-1.3, -1.0]	[-1.1, -0.8]	[-1.6, -1.4]	[-1.6, -1.3]	[-3.3, -3.0]	[-2.0, -1.7]	[-2.6, -2.3]	[-2.1, -1.9]	[-0.7, -0.3]	[-0.8, -0.4]	[-0.8, -0.4]	[-0.9, -0.6]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive 2-year forward citations – i.e., the number of citations an article receives within two years of publication. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).

Table L.1.4. Dummy for Lifetime Cites (DiD) using Articles not Subject to Any Other Open Access Mandate

	MEDLINE				*Journal*				*Full PRCA*				*1-to-1 PRCA*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Panel A: Jan 2007 - Dec 2009		[0.943]				[0.943]				[0.942]				[0.943]		
Poisson																
NIH × Post April 2008	0.022	0.029	0.025	0.025	0.027	0.026	0.021	0.020	0.008	0.013	0.012	0.013	0.003	0.004	0.003	0.003
SE (Clustered)	(0.0039)***	(0.0028)***	(0.0020)***	(0.0019)***	(0.0046)***	(0.0032)***	(0.0018)***	(0.0017)***	(0.0024)***	(0.0020)***	(0.0015)***	(0.0015)***	(0.0022)	(0.0019)*	(0.0013)**	(0.0013)*
SE (EHW)	(0.0014)***	(0.0013)***	(0.0046)***	(0.0046)***	(0.0013)***	(0.0012)***	(0.0046)***	(0.0046)***	(0.0014)***	(0.0013)***	(0.0049)**	(0.0049)***	(0.0018)	(0.0016)**	(0.0065)	(0.0065)
%Δ	2.2	2.9	2.6	2.5	2.8	2.7	2.1	2.1	0.8	1.3	1.2	1.3	0.3	0.4	0.3	0.3
%Δ (95% CI – Clustered)	[1.5, 3.0]	[2.4, 3.5]	[2.2, 3.0]	[2.1, 2.9]	[1.9, 3.7]	[2.0, 3.3]	[1.7, 2.5]	[1.7, 2.4]	[0.3, 1.2]	[0.9, 1.7]	[0.9, 1.5]	[1.0, 1.6]	[-0.2, 0.7]	[-0.0, 0.7]	[0.1, 0.6]	[-0.0, 0.5]
%Δ (95% CI – EHW)	[2.0, 2.5]	[2.7, 3.2]	[1.6, 3.5]	[1.6, 3.4]	[2.5, 3.0]	[2.4, 2.9]	[1.2, 3.0]	[1.1, 3.0]	[0.5, 1.0]	[1.1, 1.6]	[0.2, 2.1]	[0.3, 2.3]	[-0.1, 0.6]	[0.0, 0.7]	[-0.9, 1.6]	[-1.0, 1.5]
Observations	2,076,056		2,042,086		1,681,001		1,662,737		1,184,020		1,161,433		436,386		426,340	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.015	0.020	0.018	0.017	0.022	0.021	0.017	0.016	0.005	0.010	0.009	0.010	0.002	0.003	0.003	0.002
SE (Clustered)	(0.0030)***	(0.0022)***	(0.0016)***	(0.0015)***	(0.0039)***	(0.0026)***	(0.0016)***	(0.0015)***	(0.0021)**	(0.0017)***	(0.0014)***	(0.0013)***	(0.0020)	(0.0017)*	(0.0012)**	(0.0012)*
SE (EHW)	(0.0012)***	(0.0011)***	(0.0008)***	(0.0008)***	(0.0012)***	(0.0011)***	(0.0008)***	(0.0008)***	(0.0013)***	(0.0012)***	(0.0009)***	(0.0008)***	(0.0016)	(0.0015)**	(0.0011)***	(0.0010)**
%Δ	1.6	2.1	1.9	1.8	2.3	2.2	1.8	1.7	0.5	1.0	1.0	1.0	0.2	0.3	0.3	0.2
%Δ (95% CI – Clustered)	[0.9, 2.2]	[1.6, 2.6]	[1.6, 2.2]	[1.5, 2.1]	[1.5, 3.1]	[1.7, 2.8]	[1.5, 2.1]	[1.4, 2.0]	[0.1, 1.0]	[0.7, 1.4]	[0.7, 1.2]	[0.8, 1.3]	[-0.2, 0.6]	[-0.1, 0.7]	[0.1, 0.6]	[-0.0, 0.5]
%Δ (95% CI – EHW)	[1.3, 1.8]	[1.9, 2.3]	[1.7, 2.1]	[1.6, 2.0]	[2.1, 2.6]	[2.0, 2.4]	[1.6, 2.0]	[1.5, 1.9]	[0.3, 0.8]	[0.8, 1.3]	[0.8, 1.1]	[0.8, 1.2]	[-0.1, 0.6]	[0.0, 0.6]	[0.1, 0.5]	[0.0, 0.4]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Linear – IHS																
NIH × Post April 2008	0.013	0.017	0.016	0.015	0.019	0.018	0.015	0.014	0.005	0.009	0.008	0.008	0.002	0.003	0.003	0.002
SE (Clustered)	(0.0027)***	(0.0020)***	(0.0014)***	(0.0013)***	(0.0034)***	(0.0023)***	(0.0014)***	(0.0013)***	(0.0019)**	(0.0015)***	(0.0012)***	(0.0011)***	(0.0018)	(0.0015)*	(0.0011)**	(0.0011)*
SE (EHW)	(0.0010)***	(0.0010)***	(0.0007)***	(0.0007)***	(0.0010)***	(0.0010)***	(0.0007)***	(0.0007)***	(0.0011)***	(0.0010)***	(0.0008)***	(0.0007)***	(0.0014)	(0.0013)**	(0.0009)***	(0.0009)**
%Δ	1.3	1.8	1.6	1.5	1.9	1.9	1.5	1.4	0.5	0.9	0.8	0.9	0.2	0.3	0.3	0.2
%Δ (95% CI – Clustered)	[0.8, 1.8]	[1.4, 2.2]	[1.3, 1.9]	[1.2, 1.8]	[1.3, 2.6]	[1.4, 2.3]	[1.2, 1.8]	[1.2, 1.7]	[0.1, 0.8]	[0.6, 1.2]	[0.6, 1.0]	[0.6, 1.1]	[-0.2, 0.5]	[-0.0, 0.6]	[0.0, 0.5]	[-0.0, 0.4]
%Δ (95% CI – EHW)	[1.1, 1.5]	[1.6, 2.0]	[1.5, 1.7]	[1.4, 1.6]	[1.7, 2.1]	[1.7, 2.1]	[1.4, 1.7]	[1.3, 1.6]	[0.2, 0.7]	[0.7, 1.1]	[0.6, 0.9]	[0.7, 1.0]	[-0.1, 0.5]	[0.0, 0.5]	[0.1, 0.4]	[0.0, 0.4]
Observations	2,076,056		2,076,026		1,681,001		1,680,996		1,184,020		1,183,928		436,386		436,076	
Panel B: Jan 2003 - Dec 2011		[0.948]				[0.948]				[0.949]				[0.950]		
Poisson																
NIH × Post April 2008	0.051	0.075	0.061	0.063	0.056	0.061	0.050	0.050	0.013	0.031	0.020	0.025	0.011	0.013	0.010	0.009
SE (Clustered)	(0.0056)***	(0.0038)***	(0.0031)***	(0.0026)***	(0.0058)***	(0.0040)***	(0.0029)***	(0.0024)***	(0.0035)***	(0.0024)***	(0.0020)***	(0.0017)***	(0.0025)***	(0.0019)***	(0.0014)***	(0.0013)***
SE (EHW)	(0.0008)***	(0.0008)***	(0.0027)***	(0.0027)***	(0.0008)***	(0.0008)***	(0.0027)***	(0.0027)***	(0.0009)***	(0.0009)***	(0.0029)***	(0.0029)***	(0.0011)***	(0.0010)***	(0.0038)***	(0.0038)**
%Δ	5.2	7.8	6.2	6.5	5.8	6.3	5.1	5.2	1.3	3.1	2.0	2.6	1.1	1.3	1.0	0.9
%Δ (95% CI – Clustered)	[4.1, 6.4]	[7.0, 8.6]	[5.6, 6.9]	[6.0, 7.1]	[4.6, 7.0]	[5.5, 7.1]	[4.5, 5.7]	[4.7, 5.7]	[0.7, 2.0]	[2.7, 3.6]	[1.6, 2.4]	[2.2, 2.9]	[0.6, 1.6]	[0.9, 1.7]	[0.7, 1.3]	[0.6, 1.2]
%Δ (95% CI – EHW)	[5.0, 5.4]	[7.6, 7.9]	[5.7, 6.8]	[6.0, 7.1]	[5.6, 6.0]	[6.1, 6.5]	[4.6, 5.7]	[4.6, 5.7]	[1.2, 1.5]	[3.0, 3.3]	[1.5, 2.6]	[2.0, 3.1]	[0.9, 1.4]	[1.1, 1.5]	[0.2, 1.7]	[0.2, 1.7]
Observations	6,046,562		5,989,592		4,857,364		4,828,157		3,024,951		2,992,177		1,250,258		1,233,457	
Coverged (50 Iterations)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear – Levels																
NIH × Post April 2008	0.030	0.048	0.041	0.042	0.042	0.046	0.039	0.039	0.007	0.023	0.015	0.019	0.009	0.010	0.008	0.007
SE (Clustered)	(0.0043)***	(0.0029)***	(0.0024)***	(0.0020)***	(0.0047)***	(0.0032)***	(0.0024)***	(0.0020)***	(0.0030)**	(0.0021)***	(0.0017)***	(0.0015)***	(0.0023)***	(0.0017)***	(0.0013)***	(0.0012)***
SE (EHW)	(0.0007)***	(0.0007)***	(0.0005)***	(0.0005)***	(0.0007)***	(0.0007)***	(0.0005)***	(0.0005)***	(0.0008)***	(0.0007)***	(0.0006)***	(0.0006)***	(0.0010)***	(0.0009)***	(0.0007)***	(0.0007)***
%Δ	3.1	5.0	4.3	4.4	4.4	4.9	4.1	4.1	0.8	2.4	1.5	2.0	0.9	1.1	0.9	0.8
%Δ (95% CI – Clustered)	[2.2, 4.0]	[4.4, 5.7]	[3.8, 4.8]	[4.0, 4.9]	[3.4, 5.4]	[4.2, 5.5]	[3.6, 4.6]	[3.7, 4.5]	[0.1, 1.4]	[2.0, 2.8]	[1.2, 1.9]	[1.7, 2.3]	[0.5, 1.4]	[0.7, 1.4]	[0.6, 1.1]	[0.5, 1.0]
%Δ (95% CI – EHW)	[3.0, 3.3]	[4.9, 5.2]	[4.2, 4.4]	[4.3, 4.5]	[4.3, 4.5]	[4.7, 5.0]	[4.0, 4.2]	[4.0, 4.2]	[0.6, 0.9]	[2.2, 2.5]	[1.4, 1.7]	[1.9, 2.1]	[0.7, 1.1]	[0.9, 1.3]	[0.7, 1.0]	[0.6, 0.9]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Linear – IHS																
NIH × Post April 2008	0.026	0.042	0.036	0.037	0.037	0.041	0.034	0.034	0.006	0.020	0.013	0.017	0.008	0.009	0.007	0.006
SE (Clustered)	(0.0038)***	(0.0026)***	(0.0021)***	(0.0018)***	(0.0042)***	(0.0028)***	(0.0021)***	(0.0017)***	(0.0027)**	(0.0018)***	(0.0015)***	(0.0013)***	(0.0020)***	(0.0015)***	(0.0011)***	(0.0011)***
SE (EHW)	(0.0006)***	(0.0006)***	(0.0005)***	(0.0005)***	(0.0006)***	(0.0006)***	(0.0005)***	(0.0005)***	(0.0007)***	(0.0006)***	(0.0005)***	(0.0005)***	(0.0009)***	(0.0008)***	(0.0006)***	(0.0006)***
%Δ	2.6	4.3	3.7	3.8	3.7	4.2	3.5	3.5	0.6	2.0	1.3	1.7	0.8	0.9	0.7	0.6
%Δ (95% CI – Clustered)	[1.9, 3.4]	[3.8, 4.8]	[3.2, 4.1]	[3.4, 4.1]	[2.9, 4.6]	[3.6, 4.7]	[3.0, 3.9]	[3.1, 3.8]	[0.1, 1.2]	[1.6, 2.4]	[1.0, 1.6]	[1.4, 1.9]	[0.4, 1.2]	[0.6, 1.2]	[0.5, 0.9]	[0.4, 0.9]
%Δ (95% CI – EHW)	[2.5, 2.8]	[4.2, 4.4]	[3.6, 3.8]	[3.7, 3.9]	[3.6, 3.9]	[4.0, 4.3]	[3.4, 3.6]	[3.4, 3.6]	[0.5, 0.8]	[1.9, 2.1]	[1.2, 1.4]	[1.6, 1.8]	[0.6, 1.0]	[0.8, 1.1]	[0.6, 0.8]	[0.5, 0.8]
Observations	6,046,562		6,046,460		4,857,364		4,857,344		3,024,951		3,024,784		1,250,258		1,249,890	
Month Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Covariates		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes
Journal Fixed Effects			Yes	Yes			Yes	Yes			Yes	Yes			Yes	Yes

Notes – This table displays the difference-in-differences (DiD) estimates of the Public Access Policy's (PAP) impact on an indicator for positive lifetime citations – i.e. the number of citations an article ever receives. The MEDLINE sample contains all NIH and comparison articles published between 2003 and 2011 (and have both a publication month and year) that are indexed in the MEDLINE 2016 baseline files. The Journal sample contains comparison articles published in the same journal-year as at least one NIH article, the full PRCA sample contains comparison articles harvested using the PubMed Related Citations Algorithm (PRCA), and the 1-to-1 PRCA sample contains comparison articles most similar to each NIH article on the basis of the PRCA similarity score. Panels A and B use articles, from each of the four comparison samples, published between January 2007 / December 2009 and January 2003 / December 2011. In each Panel, three models are estimated: 1) Poisson using pseudo maximum likelihood (PPML), 2) linear in levels using ordinary least squares (OLS), and 3) and linear in the IHS transformation using OLS. The article-level covariates include backward citations, text-based metrics, MeSH term counts, author counts, and sets indicators for whether the author is a corporate entity, institution type, publication type, language, grant support, and first author country. The numbers in square brackets at the top of each panel are the means, for the given sample, of the outcome variable for NIH articles prior to the PAP. The numbers next to "NIH × Post April 2008" are the point estimates, $\hat{\delta}$, of δ in equation (1) in the main text. The numbers in parentheses below are the standard errors, both clustered (at the journal level) and Eicker-Huber-White (EHW). For the Poisson and linear in IHS estimates, %Δ is computed as $100 * (e^{\hat{\delta}} - 1)$. For the linear in levels estimates, it is computed relative to the mean of the outcome variable, $\bar{y}$: $100 * (\hat{\delta}/\bar{y})$. %Δ (95% CI) are computed using the same transformations on the upper and lower limits of the 95% confidence intervals (both clustered and EHW).